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General Fiction

FEB 2 1931

FORTUNE INDEX

1930

Volume II, Numbers 1-6

Numerals Indicate page numbers.

ABRONS, Louis, and building finance (P) ..... Aug 74
Adams family, story ..... Oct 64
Adams, Sherman L., & Wire Wheel Corp., stock ..... Oct 20
Adams, Robert C., and Bancamerica-Blair (P) ..... Aug 88
Addinsell, Harry M., vice president of Harris, Forbes ..... Aug 78
Adrenalin, Dr. Takamine's discovery ..... Sep 72
Advertisements of beautifiers quoted ..... Aug 43
Aisen, Maurice, and chemistry of cosmetics (P) ..... Aug 40
Alanson, Bertram E., & Mr. Gradison ..... Nov 20
Ale, story ..... Dec 60
Alberta, products of ..... Sep 44
Aldrich, Winthrop W., sketch (P) ..... Oct 138
Alexander, James S., & A. T. & T. (P) ..... Sep 92
Allegheny Steel Co., & chrome-nickel steel ..... Sep 122
Allen, Frank G., hobby of (P) ..... Nov 20
Allied Stores, chain stores in England ..... Oct 133
American Bridge Co., & Empire State ..... Sep 124
American Can Company, story ..... Nov 39
American Car & Foundry Co., story ..... Jly 62
and Turksib ..... Aug 102
American Coffee Corp., sketch of ..... Jly 49
American Founders Corp. and Harris Forbes ..... Aug 80
Atlantic Commission Co., subsidiary of A. & P. ..... Jly 45
American Locomotives, yearly production ..... Jly 59
American Smelters stocks ..... Jly 114
American Smelting & Refining Co., grows ..... Sep 130
American Telephone & Telegraph Co., story ..... Sep 37
Animal Trap Co., of America, business of ..... Nov 20
Anthony, Earle C., swimming pool ..... Sep 77
Anti-Trust Law, & Socony-Vacuum case ..... Sep 94
Antiques, Hearst collections ..... Oct 139
A. & P. in Fairfield, Conn. ..... Jly 41
Archer, Shreve M., & milling industry (P) ..... Nov 84
Architecture, new Dutch school ..... Nov 100
Arden, Elizabeth, and beauty business (P) ..... Aug 37
Arkansas River, Royal Gorge, bridge over (P) ..... Aug 85
Armour, Lester, and 18th Amendment (P) ..... Nov 136
Armored Cars, story ..... Dec 46
Armored Service Corp., and armored cars ..... Dec 46
Aroostook Valley, potato crop ..... Aug 4
Art and art objects, money spent on ..... Aug 10
Associated Gas & Electric, and stock market ..... Aug 90
Aston, Dr. James, sketch (P) ..... Dec. 107
Astor Vincent, and yachting ..... Jly 67
Atterbury, Wm. W., office of (P) ..... Jly 38
Automobile frames, making of ..... Nov 62
Automobiles, price lower ..... Jly 108
Automobiles, story (P) ..... Oct 73
Aylesworth, Merlin H., & N. B. C. (P) ..... Dec 114

• • •

BABCOCK, Stephen M., and butter machine (P) ..... Aug 86
Backland, Capt. John Jr., sketch of ..... Jly 12
Bacon, George W., office of (P) ..... Jly 39
Baker, George F., Sr., sketch (P) ..... Sep 41
Baker, George F., Jr., & A. T. & T. (P) ..... Sep 41
Balcom, Homer G., & Empire State ..... Sep 120
Baldridge, Cyrus Le Roy, painting of Carlisle ..... Aug 50
Baldwin, Harry A., & pineapples (P) ..... Nov 36
Baldwin, Lewis W., president of Missouri Pacific (P) ..... Aug 85
Baldwin Locomotive, low in stock value ..... Jly 114
Baldwin Locomotive Works, story ..... Jly 58
Baldwin, Matthias W., sketch of ..... Jly 60
Baltimore Mail Steamship Co., formed ..... Aug 84
Bain, Dr. Foster H., on minerals ..... Aug 84
Bangor & Aroostook Ry., and potato crop ..... Aug 4
Bank of France, gold holding ..... Sep 129
Banting, Dr. F. G., and insulin (P) ..... Sep 69
Barber, Wm., A., & restaurants (P) ..... Jly 49
Barbier, George, his picture "Egypt" ..... Aug 28
Barbury, Elisabeth, friend of Arden ..... Aug 40
Barringer, J. H., manager of N. C. R. ..... Aug 110
Baseball, statistics ..... Oct 134
Bates, Sir Percy, building more steamers (P) ..... Nov 131
Beatty, Edward W., & C. P. R. (P) ..... Sep 46
Bedford, Frederick H., Jr., tire-selling (P) ..... Sep 133
Beds, story (P) ..... Nov 55
Beer, story ..... Dec 60
Behn, Hernand, sketch (P) ..... Dec 35
Behn, Colonel Sosthenes, sketch (P) ..... Dec 34
Belasco, David, office of (P) ..... Jly 38
Bel Geddes, Norman, on designing; sketch of ..... Jly 51
models for Chicago World Fair (P) ..... Oct 84
Bell, James F., & milling industry (P) ..... Nov 83
Bell System, brief history ..... Sep 38
Bellamy, Wilder F., & I. T. & T. (P) ..... Dec 44
Belmont, Morgan, group banking project (P) ..... Jly 110
Bennett, Floyd, president of Wheatsworth, Inc. ..... Aug 89
Bennett, H. D., pleased with Bel Geddes' designs ..... Jly 56
Bennett, Richard B., sketch of (P) ..... Sep 134
Berlin meeting of electric light and power men ..... Aug 84
Berwick, Penna., has largest A. C. F. plant ..... Jly 86
Berwind, Edward J., & I. T. & T. (P) ..... Dec 44
Bethlehem Steel Corp., bonus distribution ..... Sep 129
Billikopf, Jacob, and unemployment fund (P) ..... Nov 130
Black, Eugene R., on depression (P) ..... Dec 144
Black, Van Lear, returns from world flight (P) ..... Jly 111
Blimps & Zeppelins of Goodyear ..... Sep 86
Blue Boy compared with rugs ..... Oct 46
Bluepoints Co., Inc., & oyster business ..... Dec 72
Board of Trade Building, Chicago (P) ..... Jly 111
Boatner, Victor V., president of G. W. R. R. (P) ..... Oct 136
Boeing, W. E., & 18th Amendment (P) ..... Nov 136
Boliden copper mines, & Kreuger & Toll deal ..... Oct 133
Bonawit, Owen G., & stained glass (P) ..... Dec 80
Bonbright & Co., prize essay ..... Jly 90
Bonds, boom of ..... Oct 134
Bonner, Paul H., and 18th Amendment (P) ..... Nov 136
Bonuses of executives ..... Sep 129
Locomotive God, mention of ..... Jly 59
Boston *Transcript*, celebrates centenary ..... Oct 6
Bourke-White, Margaret & German portfolio (P) ..... Dec 89
Bowman, Chancellor & Pittsburgh (P) ..... Dec 53
Brady, James C., director of N. Y. Edison (P) ..... Jly 112
Brazil, and coffee ..... Jly 48
Bread statistics ..... Nov 116
Breer, Carl, & Chrysler Corp. ..... Oct 73
Briggs, Dr. Charles, swimming pool (P) ..... Sep 77
Brink's Express and armored cars ..... Dec 46
British Columbia, products of ..... Sep 44
Brown, Don L., president of Pratt & Whitney (P) ..... Dec 144

Brown, Clarence M., & Columbia Gas ..... Jly 78
Brown, Frederick, and building finance (P) ..... Aug 74
Brown, Mrs. J. J., sketch (P) ..... Dec 22
Brown, R. C., & Empire State ..... Sep 120
Brown, Wheelock; Harris, Vought & Co., and building ..... Aug 60
Brueghel, Peter, picture of *Tower of Babel* ..... Oct 86
Brutschy, F. J., & Empire State ..... Sep 120
Bucyrus-Erie, and Turksib ..... Aug 102
Building company stocks, possibilities of ..... Aug 90
Bunnell, John A., president of Chicago's Board of trade (P) ..... Jly 111
Burial, mock of Mr. Business D. Pression ..... Nov 131
Burgess, Starling W., designed *Enterprise* ..... Jly 67
Burr, Frederick A., & A. & P. (P) ..... Jly 43
Burroughs, Frederick S., and Harris Forbes ..... Aug 78
Butler, Nicholas M., mention (P) ..... Oct 66

• • •

CAHILL, MICHAEL H., sketch (P) ..... Dec 107
Caliche, & nitrates ..... Oct 57
California Packing Corp., pineapple story ..... Nov 33
California, University of, stadium ..... Nov 43
Campbell & Ewald, handles G. M. accounts ..... Sep 26
Campbell Soup, & John T. Dorrance ..... Nov 42
Campbell, Thomas D., on business with Russia (P) ..... Aug 87
Canadian Pacific Railway, story (map) ..... Sep 42
Canadian National Railways Co., (map) ..... Sep 44
Candid Camera, used by Hearst ..... Sep 60
Candy, amount spent for ..... Aug 10
Cann, Howard, works for Spalding ..... Aug 65
Carlisle, Floyd L., directorates (P) ..... Jly 112
sketch of (P) ..... Aug 50
Carpenter, Mrs. John Alden, decorates beauty salons ..... Aug 40
Carpets, story ..... Oct 46
Carter, Garnet, and miniature golf courses (P) ..... Aug 87
Casey, Eddie, works for Spalding ..... Aug 65
Cash registers, and The National Company ..... Aug 67
Cassatt, Alexander J., & 18th Amendment (P) ..... Nov 136
Castle, William R., Jr., & pineapples (P) ..... Nov 372
Cates, Louis S., sketch (P) ..... Nov 132
Central Alloy Steel Corp., & chrome-nickel steel ..... Sep 122
Chadbourne, Thomas L., sketch (P) ..... Oct 138
Chain Stores, U. S., & British compared ..... Oct 133
Chanin, Irwin S., and building (P) ..... Aug 73
Chapman, Paul W., bought U. S. Lines from Government ..... Jly 109
Chase, Stuart, article on A. O. Smith Corp. ..... Nov 62
Cheney Family, sketch ..... Dec 22
Cheney, Orion H., making trade survey (P) ..... Oct 137
Chesapeake & Ohio Ry., shows profit ..... Aug 84
Chicago & North Western R. R., freight terminal ..... Oct 135
Chicago Pneumatic Tool Co., and Turksib ..... Aug 102
Chicago Stadium, indoor ..... Nov 45
Childs Co., among biggest chain stores ..... Jly 49
Chile, & nitrogen; 2 maps ..... Oct 56
Christmas shopping, story ..... Dec. 100
Chrysler cars, pictures of ..... Oct 74
Chrysler Corporation, story ..... Oct 73
Chrysler Tower, construction of (P) ..... Jly 32
height of (P) ..... Sep 56
Chrysler, Walter P., and Chrysler building (P) ..... Jly 112
Cincinnati Stock Exchange, president of ..... Nov 20
Cinema, color & sound ..... Oct 33
Cities, forty ranking ..... Sep 136
Cities Service Co., a Harris, Forbes client ..... Aug 80
City of the Future, created by Fox Films ..... Nov 129
Clark, Fred G., & 18th Amendment (P) ..... Nov 136
Clark, Walter E., owns *Resolute* ..... Jly 67
Clark, George L., and X-ray tubes (P) ..... Dec 145
Claude, Georges, and tube for sea water (P) ..... Aug 86
Clavan, I., & Empire State ..... Sep 120
Clayton Act, compared with Sherman Act ..... Sep 96
Clements, Howard P., & Pullman Co. ..... Jly 66
Cleveland, Ohio, and skyscrapers (P) ..... Dec 85
Coale, Griffith B., & murals ..... Nov 60
Coffee, & the A. & P. ..... Jly 48
Coffee, price lower ..... Jly 108
Colgate, James C., herd of Ayrshire cows ..... Aug 4
Colgate-Palmolive-Peet Co., and beauty business ..... Aug 41
Colgate, Sydney, and cosmetic business (P) ..... Aug 42
Coliseum, seating capacity (P) ..... Nov 47
Color, in cinema ..... Oct 33
Colorcraft Corp., Technicolor's rival ..... Oct 35
Columbia Gas & Electric, story ..... Jly 77
Columbia Pictures, plans of ..... Jly 107
Community chests, statistics ..... Oct 24
Comstock, Howard, buys at A. & P. (P) ..... Jly 44
Congo beauty (P) ..... Aug 29
Connick, Charles J., and stained glass (P) ..... Dec 79
Coolidge, Calvin, begins newspaper column (P) ..... Aug 88
Cooper, Charles P., & A. T. & T. (P) ..... Sep 92
Cooper, Major Colin, & grocery merger (P) ..... Oct 133
Cooper, Col. Hugh L., builds Dnieper River Plant ..... Aug 46
Copper, price lower ..... Jly 108
Corliss, C. A., of Pond Co., (P) ..... Aug 42
Cornell Stadium ..... Nov 44
Corrington, J. D., match collection ..... Oct 102
Corsair, races with Chester ..... Jly 109
Cosach enterprise, nitrogen story ..... Oct 105
Cosmetic company stocks, possibilities of ..... Aug 90
Cosmetics for men, limitations of ..... Aug 92
Cosmetics, story ..... Aug 29
Cosmopolitan, price lower ..... Jly 108
Cotton, price lower ..... Jly 108
Coty, Francois, and perfume business (P) ..... Aug 35
Couzens, James, & Ford Motor Co., (P) ..... Oct 136
Cowles, Sophia D., & fire escapes ..... Jly 12
Cows, Ayrshire, popular; list of herd owners ..... Aug 4
Cram, Ralph A., & stained glass (P) ..... Dec 77
Crane, Charles Richard, resigns ..... Aug 4
Crane, John Oliver, in politics ..... Aug 4
Crane, Richard Teller, founder of Crane Co. ..... Aug 4
Crane, Richard Teller, Jr., now president of Crane Co. ..... Aug 4
Crawford, David A., president of Pullman Co. ..... Jly 66
Crawford, Fred, & Columbia Gas ..... Jly 78
Crawford, George, & Columbia Gas ..... Jly 78
Crawford, George G., & Pittsburgh (P) ..... Dec 54
Crawford, Harry, & Columbia Gas ..... Jly 78
Crosby, Franklin M., & General Mills (P) ..... Nov 84
Crosby, John, & milling industry ..... Nov 83
Crossley, Inc., & radio advertising ..... Dec 65
Crusaders, fight Prohibition ..... Nov 136
Cudahy, E. A. Jr., & 18th Amendment (P) ..... Nov 136
Currency, rate of turnover ..... Aug 10
Currier, Everett R., new Currier & Ives Inc. ..... Sep 26
Currier & Ives, Inc., & sport prints ..... Sep 26
Curtiss, Julian W., and Spalding (P) ..... Aug 66
Cutler, John W., & I. T. & T. (P) ..... Dec 44
Cutten, Arthur W., gets last of nine gangsters (P) ..... Sep 132
Cutting, Juliana, & debutantes ..... Dec 96

• • •

DAHL, GERHARD M., sketch (P) ..... Nov 132
D'Ascenzo, Nicola, & stained glass (P) ..... Dec 78
Davis, Donald D., & General Mills (P) ..... Nov 84
Davis, Francis B., Jr., & U. S. Rubber (P) ..... Sep 85
Davis, John W., sketch (P) ..... Sep 92
Debutantes, list of ..... Dec 96
Debutante's budget ..... Dec 96
Deering, James, swimming pool (P) ..... Sep 76
De Guell, Conde, & I. T. & T. (P) ..... Dec 44
Denver & Rio Grande Western Ry., bridge (P) ..... Aug 85
Derrick Gangs, described ..... Oct 88
Deupree, Richard R., sketch (P) ..... Dec 107
De Urquijo, Marques, & I. T. & T. (P) ..... Dec 44
Diamond-cutters, prices ..... Jly 108
Diamond Match Co., problem of ..... Jly 50
Diamond, Milton, sketch (P) ..... Dec 107
Diebold, A. H., & Sterling Products (P) ..... Oct 44
Dillingham, Walter F., Pineapple story (P) ..... Nov 37
Dillon, Clarence, financing of N. C. R. deal ..... Aug 71
Directors meeting of National Dairy Products ..... Dec 26
Dnieper River hydroelectric plant, in Russia ..... Aug 46
Dole, James D., & pineapples (P) ..... Nov 33
Dollar, Captain Robert, & Dollar Steamship lines ..... Oct 134
Dominick & Dominick, & I. T. & T. ..... Dec 45
Doran, George H., sketch of (P) ..... Sep 134
Dorrance, Dr. John T., & Campbell Soup (P) ..... Nov 42

Dowling, Robert, and building finance (P) ... Aug 75
Dowswell, H. R., & Empire State ... Sep 120
Drake, James F., & Pullman Co. ... Jly 66
Drug Inc., among biggest chain stores ... Jly 49
Drug Inc., story ... Oct 42
Drugs, story ... Oct 42
Dubinsky, David, & Milgrim (P) ... Dec 145
Du Pont, Lammont Jr., & 18th Amendment (P) ... Nov 136

• • •

EARLE, MARIE, and beauty business ... Aug 92
Earnings of 250 companies ... Sep 130
Earnings statement of 40 Wall St. Corp. ... Aug 72
Eastman, George, office of (P) ... Jly 30
Eastman, Joseph B., of I. C. C., and freight rates ... Aug 84
Eaton, Cyrus S., acquires control of Goodyear (P) ... Sep 88
Eckstein, Louis, & Chicago music ... Jly 8
Eddington, A. S., on latent power ... Aug 84
Eddystone, Penna., sketch of ... Jly 60
Ehnes, Dr. Morris W., & Wendel estate (P) ... Sep 133
Ehrlich, Paul, discovery of salvarsan (P) ... Oct 45
Eidlitz, Marc & Son, and building business ... Aug 60
Eiffel Tower, height (P) ... Sep 56
Eken, A. J., & Empire State ... Sep 120
Electric Light & Power, 1920-1930, story ... Jly 90
Meeting in Berlin ... Aug 84
Electrical Research Products Co. ... Sep 39
Electricity Consumption, figures for ... Jly 109
Elevators, & skyscrapers ... Nov 77
Speed limit for ... Aug 10
Eli Lilly & Co., & insulin ... Sep 73
Empire State Building, building of; diagram ... Sep 53
Engineers Public Service Co., & Stone & Webster ... Nov 91
Enterprise, to race for America's cup ... Jly 67
Equipment for sports, costs of ... Aug 66
Equitable Office Building Corp., stock ... Aug 90
Ericcson Telephone Co., L. M., & Kreuger & Toll deal ... Oct 133
Erskine, Albert Russell, and "free wheeling" (P) ... Aug 87
Ether, Squibb & Sons' manufacture of ... Sep 70
European super-power system, advocated by Oliven ... Aug 84
Ewald, Henry T., sketch of ... Sep 26
Executive Offices, pictures of ... Jly 38
Exploration, cost of ... Jly 8

• • •

FACTOR, MAX, manufacturer of make-up ... Aug 94
Factory, in Rotterdam (P) ... Nov 100
Factory accidents, statistics ... Oct 24
Fairburn, Wm. A., on Swedish Match Co. ... Jly 50
Farish, W. S., & Humble Pipe Line Co. (P) ... Sep 132
Farrell, James A., & Pittsburgh (P) ... Dec 54
Feisal, King of Iraq, & Oil company (P) ... Oct 136
Ferriss, Hugh, drawings of future cities ... Nov 129
Filshie, Kathryn, R., & nail manufacturing ... Jly 10
Financing of buildings ... Aug 72
Fire Escapes, See Sophia D. Cowles ... Jly 12
Firestone, Harvey S., Jr., vice-president of Firestone Co. (P) ... Sep 143
& Rubber; sketch (P) ... Sep 78
Firestone Tire & Rubber Co., story ... Sep 78
Firor, Frank M., and sausages; sketch of (P) ... Sep 8
First National, plans of ... Jly 107
Flagg, James M. (P) ... Aug 32
Flagler, Harry H., subscribed to Philharmonic tour ... Jly 113
Flags, yacht, of owners (P) ... Jly 67
Fletcher, Henry P., sketch (P) ... Oct 138
Flowers grown for perfume (P) ... Aug 34
Folger, Henry Clay, leaves books to Washington (P) ... Aug 86
Forbes, W. Cameron, sketch (P) ... Sep 134
Forbes, William C., & A. T. & T. (P) ... Sep 41
Ford, Henry, on overproduction (P) ... Sep 135
sketch (P) ... Nov 132
Forgan, Russell J., & 18th Amendment (P) ... Nov 136
Forty Wall Street, construction of ... Oct 85
Fouke Fur Company, & seal business ... Nov 72
Foundations, for skyscrapers described ... Oct 87
Fox Films, plans for ... Jly 107
Fox, Frances, hairdresser ... Aug 92
Fox Hunting, story ... Nov 48
Foxcroft School ... Nov 51
Foy, Bryan, & talkies ... Oct 128
Franklin, P. S., Steamship merger (P) ... Sep 133
Frasch, Herman, sketch ... Oct 79
Frasch Process, described ... Oct 78
Freeport Texas Co., & Sulphur ... Oct 80
Freight, statistics ... Oct 24
Freight Terminal, described (P) ... Oct 135
Freight Cars, story ... Jly 62
French, Fred F., and building finance (P) ... Aug 73
Fritsche, Mrs. E. R., herd of Ayrshire cows ... Aug 4
Fuller, George A., Co., subsidiary of Starrett Bros. ... Aug 60
mention ... Sep 119
Fuller, Mortimer B., & International Salt (P) ... Jly 111
& salt industry ... Aug 52
Fur, & seal industry ... Nov 70

• • •

GABOYEFF, GIGA, painter, "Discovered" by Charles Crane ... Aug 4
Gales, George M., & United Drug (P) ... Oct 44
Gandhi, and Indian economics (drawing) ... Aug 59
Gardner, George H., & I. T. & T. (P) ... Dec 44
Gardner, George P., A. T. & T. story (P) ... Sep 92
Garment Trade, letter ... Oct 22
Garretto, drawing of Gandhi ... Aug 59
Gates, Thomas S., & Baldwin Locomotive Works ... Jly 61
becomes pres. of Univ. Penna. (P) ... Aug 88
Geminet, perfumer (P) ... Aug 33
General Mills, story ... Nov 81
Germany, pictures of ... Dec 89
Gest, Morris, bankrupt (P) ... Oct 136
Gifford, Walter S., A. T. & T. story (P) ... Sep 37
Gilbert, Seymour P., returns to U. S. (P) ... Jly 112
Gilling Castle, picture of Great Chamber ... Oct 139
Gingerbread Castle, built for Wheatsworth (P) ... Aug 89
Gobel, Inc., Adolf, & sausages ... Sep 8
Gold, value of ... Oct 70
Gold holdings of the Bank of France ... Sep 129
Goldner, Steffy, praised ... Jly 113
Golf balls, new official ... Aug 63
Golf clubs, steel ... Aug 63
Goodman, Saul, praised ... Jly 113
Goodrich Co., B. F., growth of ... Sep 98
Goodyear, Charles, & vulcanization (P) ... Sep 78
Goodyear Rubber Co., growth of ... Sep 85
Goodyear Blimps & Zeppelins ... Sep 86
Gossler, Philip, & Columbia Gas ... Jly 78
Gould, Wm., patronizes the A. & P. (P) ... Jly 44
Grace & Co., W. R., & guano ... Oct 106
Gradison, Willis D., & Mr. Alanson ... Nov 20
Grant, Richard F., & miners' strike (P) ... Oct 137
Granbery, Carleton E., and Harris Forbes ... Aug 78
Gray, Dorothy, salon owned by Lehn & Fink ... Aug 92
Gregg, John R., and shorthand (P) ... Sep 8
Guano, Peruvian industry ... Oct 106
Guerlain, perfumes of (P) ... Aug 33
Guggenheim, Daniel, death of (P) ... Nov 131
Guggenheim Family story ... Jly 72
Guggenheim Process, described ... Oct 59
Guidi, Sapione, praised ... Jly 113
Guinness Family, sketch (P) ... Dec 58
Gunsberg, Dr. Samy, dentistry & lawsuits ... Nov 87

• • •

HALLOWELL, ROBERT, pictures of skyscrapers ... Dec 86
Hammond, John H. Jr., invents "eye" for pilots (P) ... Jly 110
Hammond, John Hays Sr., & Atlantic-Pacific Oil Exploration (P) ... Jly 110
Hardy, Sam, works for Spalding ... Aug 65
Harper, Matilda and Martha, hairdressers ... Aug 92
Harris, Forbes & Co., underwriters ... Aug 76
Hartford, John, & the A & P; sketch of ... Jly 46
Hawaiian Pineapple Co., story ... Nov 33
Hearst Consolidated Publications, Inc., stock sold ... Aug 80
Hearst, William R., king of newspictures (P) ... Sep 60
& British antiques ... Oct 139

Hebermann, Henry, & shipping (P)....Oct 137
Helm, Harry S., & milling industry (P)....Nov 84
Helm, W. C., & milling industry (P)....Nov 84
Heinz, Howard, & international banquet (P)....Dec 144
Henderson, H. K., *v.* chain stores....Jly 45
Hepburn, Mrs. Barton A. (P)....Sep 132
Herreshoff, John, shipyards....Jly 68
Herrick, Parmely, & orchids (P)....Dec 144
Hershey Chocolate Corp., earnings....Jly 108
Heuser, F. W. J., mention (P)....Oct 66
Hibbard, Thomas, president of Geo. Lawley & Son Corp....Jly 69
Hides, price lower....Jly 108
Hikawa Maru, described....Jly 109
Hill, George W., sketch (P)....Oct 138
Hillman, J. H. Jr., & Pittsburgh....Dec 148
Hines, Frank T., director of Veterans' Administration (P)....Sep 132
Hitchcock, Henry Russell, on modern architecture....Jly 51
Hitchcock, Thomas Jr., & Prestcoke Corp. (P)....Oct 137
Hoag, C. R., maker of medals....Aug 8
Hoffield, George L., typewriting record....Oct 24
Hogate, Kenneth C., on "frozen cash"....Nov 128
Hollywood Bowl, seating capacity (P)....Nov 45
Hollywood, Calif., & skyscrapers (P)....Dec 85
Holt, Sir Herbert S., and British Steel Corp. (P)....Jly 111
Hood, Raymond, office of (P)....Jly 38
Hopson, Howard C., leads activities of A. G. & E....Aug 80
Horse Assn. of America, farm problem....Sep 134
Houston, David F., sketch (P)....Sep 92
Houston, George H., & Baldwin Locomotive Works....Jly 61
Houston, Texas, & skyscrapers (P)....Dec 85
Howard, George, & United Corp....Jly 82
Howe, Henry S., & A. T. & T. (P)....Sep 93
Hoyt, Allen, G., & I. T. & T. (P)....Dec 44
Hughes, Howard, & Multicolor....Oct 35
sketch (P)....Dec 107
Hughes, I. Lamont, & Pittsburgh (P)....Dec 54
Humberstone, Don Santiago & nitrates (P)....Oct 58
Humberstone, James, & nitrates (P)....Oct 58
Hungerford, Louis S., vice-president & general manager of Pullman Co..Jly 66
Hunter, R. H., & Empire State....Sep 120
Hunting, story (maps)....Nov 48
Hunting Scenes, pictures of....Nov 49

• • •

I. G. FARBENINDUSTRIE, its manufactures....Oct 45
I. G. Farbenindustrie & notrogen....Oct 61
Income of average U. S. Citizen....Aug 10
India, economic structure of....Aug 58
Indiana, rumor of state bank failure....Nov 22
Insulin, Dr. Banting's discovery....Sep 73
International Match Corp., to set up plants in U. S....Jly 50
International Salt Co., and salt industry....Aug 52
International Telephone & Telegraph Co., story, maps....Dec 37

• • •

JACKSON, DR. SHELDON, & reindeer....Oct 6
James, Arthur Curtiss, railroad transactions of....Aug 85
Javal, Fernand, operator of house of Houbigant (P)....Aug 97
Jennings, Mrs. Lawrence K., buys at A. & P. (P)....Jly 44
Jennings, O. G., & A. & P....Jly 44
Jericho Turnpike, story on hunting....Nov 48
Jones, B. F., III, & Pittsburgh (P)....Dec 54
Jones, Robert Tyre, Jr., Currier & Ives' print....Sep 36
Jones Sausages, success of....Sep 20
Jordan, George E., & Evangeline Adams....Oct 67
Judd, Lawrence M., & pineapples (P)....Nov 37
Judson, Arthur, manager for Philharmonic (P)....Jly 113

• • •

KAHN, OTTO, compared with Louis Eckstein....Jly 8
Kalmus, Dr. Herbert T., & Technicolor....Oct 34
Kamm, Dr. Oliver, & pituitary glands (P)....Sep 69
Keeley, James & Pullman Co....Jly 66
Kennedy & Co., credit given....Oct 22
Kenny, William F., newspicture of....Sep 108
Kilowatt Hours, amount generated....Aug 84
King, Theophilus & golf....Dec 24
Klein, Samuel, on cloak & suit business....Oct 22
Klieg lights, mention....Oct 128
Kny-Scheerer, affiliated with cosmetic industry....Aug 43
Kraft, James L., likes antiquities....Aug 8
Kreuger, Ivar, & match monopolies....Jly 50
Kreuger & Toll, telephone & copper deals....Oct 133

• • •

LABOR UNIONS, rules and by-laws....Nov 59
La Farge, John, & stained glass....Dec 75
Lafayette (ship) rivals *Hikawa Maru*....Jly 109
Lamb, William F., & Empire State (P)....Sep 119
Latz, Israel, & beauty shops (P)....Jly 49
Laughing Cat, The, largest selling newspicture (P)....Sep 64
Laughlin, George M., Jr., & Pittsburgh (P)....Dec 136
Lawley Yards, & yacht building....Jly 69
Lee, Thomas F., retires from N. A. Trust Shares (P)....Aug 88
Leeds, William B., & American Can (P)....Nov 39
Lefcourt, A. E., skyscraper builder (P)....Aug 73
Leffingwell, Russel C., & I. T. & T. (P)....Dec 44
Lehman, Albert C., & Pittsburgh (P)....Dec 54
Lehman, Allan, financier for Coty in U. S....Aug 36
Lehn & Fink, and beauty business....Aug 43
Leichner, European manufacturer of make-up....Aug 94
Leroy, P. E. H., treasurer for Goodyear (P)....Sep 86
Leunawerk, see I. G. Farbenindustrie....Oct 61
Lever Bros., and soap as a beautifier....Aug 43
Levering & Garrigues, & derricks....Oct 92
Levy, Benjamin E., and Coty (P)....Aug 33
Lewis, John L., & miners' strike (P)....Oct 137
Lewis, Thomas, husband of Elizabeth Arden....Aug 41
Libby, McNeill, & Libby, pineapple story....Nov 33
Liggett, Louis K., & chain drug stores (P)....Jly 49
& Rexall idea (P)....Oct 44
Liggett stores, & Drug Inc....Oct 42
Lindbergh, Col. Charles A., & flight to Paris (P)....Sep 67
Lindquist, David, & Empire State....Sep 124
Liquor, amount spent on, last year....Aug 10
Litchfield, Paul W., & Goodyear Rubber (P)....Sep 85
Lititz, Penna., & mousetrap business....Nov 20
Little, Arthur D., sketch (P)....Dec 107
Livestock, killed on Central of Georgia....Nov 24
Llewellyn, Paul, chairman of Pickands, Mather (P)....Dec 145
Locomotives, & builders....Jly 59
Loew, Arthur, swimming pool (P)....Sep 76
Lomen, Carl J., & reindeer steak (P)....Oct 6
Long, Ray, and Cosmopolitan beauty advertising (P)....Aug 42
Loomis, Edward E., A. T. & T. story (P)....Sep 92
Lord, Daniel M., & advertising (P)....Jly 110
Lord, Herbert M., on Coolidge economy (P)....Jly 110
mention....Nov 59
Loree, Leonor F., trained Sir Henry Thornton....Sep 51
Loring, Albert C., Pillsbury Flour Mills (P)....Nov 84
Los Angeles Olympic Stadium, seating capacity (P)....Nov 47
Lowman, Seymour, & wood pulp embargo (P)....Sep 133
Lyman, Arthur, sketch (P)....Sep 92

• • •

McCALLUM, CHARLES, & Drug Inc....Oct 110
McCann, Harrison K., & Erickson merger (P)....Nov 130
McClintic-Marshall, & Empire State....Sep 124
McEldowney, Henry C., & Columbia Gas....Jly 78
McHugh, Thomas J., of Vivadou (P)....Aug 42
McInerney, John, & Empire State....Sep 120
McMahon, A. C., star salesman for N. C. R....Aug 69
McManamy, Chairman Frank, and freight rates....Aug 84

• • •

MacARTHUR, DOUGLAS, sketch (P)....Sep 134
MACHLETT, RAYMOND R., & neon lights (P)....Nov 130
Mack, Charles E., & swimming pool (P)....Sep 76
Mackay, Clarence H., and Philharmonic tour (P)....Jly 113
& I. T. & T. (P)....Dec 44
Madison Square Garden, seating capacity....Nov 45
Make-up, colors of (P)....Aug 31

Maloney, Andrew J., & Philadelphia & Reading (P) ... Dec 145
Mandell, George S., & Boston *Transcript* ... Oct 6
Manhattan Company Building, construction of ... Oct 85
Manhattan Co. Tower, height (P) ... Sep 57
Manitoba, products of ... Sep 45
Mannequins, manufacture of (P) ... Sep 89
Manning, Bishop William T., cathedral (P) ... Nov 130
Mange, J. I., president of A. G. & E. ... Aug 80
Marconi rigs, story ... Jly 71
Marion Steam Shovel Co., and Turksib ... Aug 102
Marston, Hunter S., on board of General Foods (P) ... Jly 110
Martin, Helen, beauty adviser (P) ... Aug 42
Master Car Builders Assn., & freight cars ... Jly 84
Match Boxes, story (P) ... Oct 68
Match Industry, story ... Jly 50
Matches, story ... Oct 68
Matchabelli, perfumer (P) ... Aug 32
Mather, Philip, & 18th Amendment (P) ... Nov 136
Maxim, Hiram P., & silencer (P) ... Dec 145
May Drug Co., & Drug Inc. ... Oct 42
Medicines, story ... Sep 68
Mellon, Andrew W., & Pittsburgh ... Dec 52
Mellon family ... Dec 135
Mellon, Richard B., & Pittsburgh (P) ... Dec 52
Mellon, R. K., & Pullman Co. ... Jly 66
Mellon, Richard K., & Pittsburgh (P) ... Dec 136
Melville, Frank Jr., & shoes (P) ... Jly 49
Melville Shoe Corp., among biggest chain stores ... Jly 49
Mercurio grocery, A. & P. story ... Jly 44
Merrill, John L., & I. T. & T. (P) ... Dec 44
Merv, ancient city on Turk-sib Ry. ... Aug 47
Metal Walls, & skyscrapers ... Dec 84
Metals, decline of ... Sep 130
Metro-Goldwyn-Mayer, plans for ... Jly 107
& Technicolor ... Oct 34
Metropolitan Life Insurance Co., estimates ... Aug 10
Metz Laboratories, & Spinocain ... Oct 45
Meyer, Eugene Jr., sketch (P) ... Oct 138
Metropolitan Tower, height (P) ... Sep 57
Meyer, Strong & Jones, & Empire State ... Sep 120
Miami, Fla., & skyscrapers (P) ... Dec 85
Michelin, Jules H., on bonuses (P) ... Sep 133
Michelson, A. A., and tube for light measurement (P) ... Aug 86
Michigan, University of, stadium ... Nov 43
Milestone, Lewis, cinema producer ... Jly 111
Millers of Minneapolis, story ... Nov 81
Mining of salt (P) ... Aug 53
Mining Trust, Ltd., & American Smelting & Refining ... Sep 130
Missouri-Kansas Pipe Line Co. ... Jly 109
Missouri Pacific R. R., joins the Van Sweringens ... Jly 107
Missouri Pacific Ry., shows profit ... Aug 85
Mitchell, Charles E., & I. T. & T. (P) ... Dec 44
Mitchell, William H., & 18th Amendment (P) ... Nov 136
Mitzi, (cat) inherits $15,000 (P) ... Dec 144
Models, story ... Sep 89
Moore, William H., & American Can (P) ... Nov 39
Moran, Daniel J., Great Lakes Pipe Line Co. (P) ... Sep 132
Moreau, Emile, & Bank of France (P) ... Nov 130
Moret, Clement, & Bank of France (P) ... Nov 130
Morgan, Mrs. Henry S., sketch (P) ... Oct 65
Morgan, Pierpont J., sketch ... Oct 98
Morgan The Magnificent, reviewed ... Oct 98
Morrell, Dr. J. A., at Squibb Co. ... Sep 73
Morrow, George K., & United Cigar Stores Co. (P) ... Jly 49
& milling industry (P) ... Nov 84
Mortgages on buildings, methods of operation ... Aug 72
Morton, Joy, and salt industry ... Aug 52
Morton Salt Co. ... Aug 52
Motilal, Chimanram, & silver ... Oct 70
Motion Picture Stars, brief sketches (P) ... Oct 36
Motion Pictures, color and sound ... Oct 33
Movie Magazines, sold at 5 & 10 stores ... Oct 136
Movies, plans for 1930 ... Jly 107
Mulford & Company, H. K., & insulin ... Sep 73
Munson, Frank, & Munson Line (P) ... Oct 137
Mural painting, & Griffith B. Coale ... Nov 60
Mussolini, Benito, on liars (P) ... Jly 110
Multicolor, Technicolor's rival ... Oct 35

NAILS, see Kathryn R. Filshie ... Jly 10
Napoleon, number of books on ... Aug 10
National Broadcasting Co., Inc., & advertising ... Dec 70
National Cash Register Co., history & description of ... Aug 67
and stock market ... Aug 90
National Dairy Products, directors meeting ... Dec 26
National Tours of New York, chartered "to Nowhere" ... Jly 109
Nesbit, Evelyn, newspicture ... Sep 108
Nestle-LeMur Co., permanent waves ... Aug 94
Nevins, Henry, & yacht building ... Jly 68
Newspictures, story ... Sep 60
New Sweden, Maine, potato crop ... Aug 4
New York Life Insurance Co., Tower, height (P) ... Sep 57
Niagara Hudson Power Co., and Carlisle ... Aug 51
Niemeyer, Sir Otto, & Australian finance ... Oct 133
Night Baseball, spread of ... Oct 134
Nippon Yusen Kaisha Line, low rates ... Jly 109
Nitardy, Ferdinand W., & copper cans for ether ... Sep 72
Nitrogen, European conference ... Oct 55
Nitrogen, story ... Oct 55
Noland, Charlotte, & Foxcroft school ... Nov 51
Northam Warren, and Cutex ... Aug 92
Northeastern Power Corp., and Carlisle ... Aug 51
Norton, Edwin, & American Can ... Nov 40
Nourmahal, sailed to Galapagos Islands ... Jly 67
Noyes, Charles F., and building (P) ... Aug 60

• • •

OENSLAGER, George, & carbon black for tires ... Sep 88
Offices, of executives (P) ... Jly 38
Ogilvie Sisters, hairdressers ... Aug 92
Ohio Fuel Company, merged with Columbia Gas & Electric ... Jly 78
Ohio Match Co., operates in summer ... Jly 50
Ohio State University, stadium ... Nov 43
Ohrstrom, George Lewis, and building (P) ... Aug 73
Oil, in Venice, Calif. ... Nov 135
Old Plaza de Toros (P) ... Nov 46
Oliven, Dr. Oskar, on transmission power lines ... Aug 84
Oliver, David B., & Pittsburgh (P) ... Dec 54
Orde, Henry B., & I. T. & T. (P) ... Dec 44
O'Sullivan, Humphrey, & O'Sullivan heels ... Sep 98
Ontario, products of ... Sep 45
Oscar, & Waldorf-Astoria ... Sep 53
Ostruk, Paul & de luxe cars (P) ... Nov 130
Otis Company, & Empire State ... Sep 124
Otis Elevator Co., stocks ... Aug 90
history ... Nov 105
Oud, J. J. P., on modern architecture ... Jly 51
Owen, Emerson D., & unemployment relief (P) ... Dec 145
Oyster business, story ... Dec 71

• • •

PABST, FRED SR., & beer (P) ... Dec 63
Paderewski, Ignace Jan, comments of (P) ... Aug 87
Palmer, Mrs. Carleton H., buys at A. & P. (P) ... Jly 43
Palmolive Hour, picture of artists ... Dec 64
Paramount Publix Corp., statistical survey ... Sep 28
Paris, Viola, beauty advisor (P) ... Aug 42
Parke, Davis & Company, story ... Sep 69
Parrish & Co., Amos, & mannequins ... Sep 90
Paramount Pictures, plans for ... Jly 107
Parson, H. T., & Five & Ten (P) ... Jly 49
Pathe Pictures, plans of ... Jly 107
Patterson, Mrs. Eleanor M., sketch of (P) ... Sep 134
Patterson, John Henry, founder of Cash Register Co. (P) ... Aug 67
Pennants, of owners (P) ... Jly 67
Penney Co., J. C., among biggest chain stores ... Jly 49
Penney, James C., and stores (P) ... Jly 49
Pennsylvania Ry., memorial placque ... Aug 8
Pennsylvania Salt Manufacturing Co. ... Aug 52
Pepper, note on ... Aug 109
Perfumes, ingredients and manufacture ... Aug 32
Perkins, Col. Albert T., sketch (P) ... Nov 132
Perkins, Mr. & Mrs. Donald, shop at A. & P. (P) ... Jly 43
Perkins, Thomas N., sketch (P) ... Sep 92
& slang (P) ... Oct 67
Perkins, Mrs. Thomas N., & Adamses ... Oct 67

Persian rugs, list of world's greatest ..... Oct 100
Personalities in sport ..... Aug 64
Peseta, note on ..... Dec 123
Philadelphia, Penna., & skyscrapers (P) ..... Dec 85
Philharmonic Symphony, & European tour ..... Jly 113
Phipps, Henry, death of (P) ..... Nov 131
Pickford, Mary, Tom Thumb golf course ..... Nov 131
Pillsbury, Charles S., & milling industry (P) ..... Nov 84
Pillsbury, John S., & milling industry (P) ..... Nov 84
Pineapples ..... Nov 33
Pingree, George E., & I. T. & T. (P) ..... Dec 44
Pinkham, Lydia E., history of compound (P) ..... Sep 71
Pipe Line, from Texas to Indianapolis ..... Jly 109
Pittsburgh, Penna., industries & people, map ..... Dec 48
Pogany, Willy, & St. George swimming pool (P) ..... Sep 75
Pollan, Rene, praised ..... Jly 113
Pollard, Governor, mock burial (P) ..... Nov 131
Pond's Extract Co., and cosmetic manufacture ..... Aug 43
Pools, Swimming, story ..... Sep 74
Pope, Arthur U., & Persian rugs ..... Oct 100
Pope, John R., & British Museum (P) ..... Dec 145
Porters, Pullman, sketch of ..... Jly 8
Post & McCord, erectors for Empire State ..... Sep 124
Posters advertising cosmetics (P) ..... Aug 41
Potatoes, in Maine ..... Aug 4
Pratt, Herbert L., Socony-Vacuum dispute ..... Sep 94
Prestcoke Corp, mention ..... Oct 137
Pribilof Islands, & seal business ..... Nov 70
Primrose House, and beauty business ..... Aug 92
Procter & Gamble Co., and beauty business ..... Aug 41
Procter, Col. Wm. C., on soap sculpture contest (P) ..... Jly 111
Pulitzer, Ralph, swimming pool (P) ..... Sep 77
Pullman Company, story ..... Jly 64
Pullmans, privately owned, list of ..... Jly 65
Puretest, & Drug Inc., ... Oct 42
Pynchon & Co., statistics on utility production ..... Aug 84

• • •

QUAKER MAID CO., The subsidiary of A. & P. ..... Jly 45
Quebec, products of ..... Sep 45

• • •

RADIGAN, ED, & skyscrapers (P) ..... Oct 94
Radio advertising, story ..... Dec 65
Radio Corp., & advertising ..... Dec 70
Radio-Keith-Orpheum Pictures, plans for ..... Jly 107
Railway stocks, comment on ..... Jly 114
Railroad Men's Building & Savings Assn. ..... Nov 22
Railroads, & hazards ..... Nov 24
Raskob, John J., & Alfred E. Smith (P) ..... Sep 53
Ratsey & Lapthorn, & sail making ..... Jly 70
Rayon, & sulphur ..... Oct 83
RCA Victor Plant, gives jobs ..... Nov 128
Reach, Milton B., and Spalding (P) ..... Aug 66
Reed, Lansing P., & I. T. & T. (P) ..... Dec 44
Refining of salt ..... Aug 54
Registan, Gaboyeff Painting of (P) ..... Aug 47
Reid, Daniel G., & American Can (P) ..... Nov 39
Reindeer, U. S. industry ..... Oct 6
Remedies, famous, notes on ..... Oct 45
Rentschler, Frederick B., history of (P) ..... Nov 73
Rentschler, Gordon S., history of (P) ..... Nov 73
Reploglé, J. Leonard, sketch (P) ..... Oct 138
Resolute, to race for America's Cup ..... Jly 67
Rexall stores, & Drug Inc. ..... Oct 42
Rigs, for yachts ..... Jly 71
Riveting, of skyscrapers ..... Oct 89
Robbins, Charles F., and Spalding (P) ..... Aug 66
Roberts, Owen J., mention ..... Sep 93
Rockefeller, John D. Jr., contributed to Philharmonic Tour ..... Jly 113
& building projects ..... Nov 127
Rodriquez, Joaquin, to fight under the taurine code (P) ..... Sep 132
Rogers, Col. Henry H., swimming pool of (P) ..... Sep 74
Roosevelt, Mrs. Franklin D., believes in trade unions (P) ..... Jly 111
Roosevelt, Kermit, Steamship line merger (P) ..... Sep 133
Roosevelt, Nicholas, sketch (P) ..... Nov 132
Roosevelt Steamship Lines, and Baltimore Mail ..... Aug 84
Royal Crystal Salt, refiners ..... Aug 102
Rubber, price lower ..... Jly 108
story ..... Sep 78
Rubinstein, Helena, and beauty business (P) ..... Aug 37
Rugs, story ..... Oct 46
Russia, executions ..... Nov 127
Rust, H. B., & Pittsburgh (P) ..... Dec 53
Ryan, John B. Jr., & wife, & Newark *Free Press* (P) ..... Sep 133

• • •

SABIN, CHARLES H. JR., & 18th Amendment (P) ..... Nov 136
Sage, Peggy, and manicuring business (P) ..... Aug 97
Sail Making, description of (P) ..... Jly 69
St. George Hotel, swimming pool (P) ..... Sep 75
St. Louis, Missouri, & fur business ..... Nov 122
Salt mining and refining ..... Aug 52
Samarkand, City of, market place (P) ..... Aug 47
Samuels, Martin, & St. George swimming pool (P) ..... Sep 75
San Francisco Stock Exchange, president of ..... Nov 20
Sands, Daniel C., & hunting ..... Nov 51
Sanford, Edward F. Jr., mention ..... Sep 75
Sarno, Tony, & newspictures (P) ..... Sep 60
Saskatchewan, products of ..... Sep 44
Saturday Evening Post, mention ..... Aug 10
Sausages, & Frank M. Firor ..... Sep 8
Saws, ideal factory of Simond's ..... Dec 104
Scarr, James H., stockholders' prophecy (P) ..... Oct 137
Schenck, Joseph M., & Technicolor ..... Oct 34
Schenck, Nicholas, sketch (P) ..... Nov 132
Schick, Dr. Bela, & diphtheria test (P) ..... Sep 69
Seagrave, Louis H., on Electric Power Corp. (P) ..... Jly 111
Seal Industry, story ..... Nov 70
Sears, Roebuck & Co., statistics ..... Jly 14
Seiberling, Frank, & rubber ..... Sep 142
Selig, Lester N., sketch (P) ..... Dec 107
Seligman & Latz, among biggest chain stores ..... Jly 49
operators of beauty shops ..... Aug 41
Seymour, Jim, & oysters (P) ..... Dec 73
Seymour, Katherine, & radio advertising (P) ..... Dec 114
Shanks Process, described ..... Oct 58
Sharkey-Schmeling foul, newspicture of (P) ..... Sep 107
Shatov, William, & Turk-Sib Railroad (P) ..... Jly 112
directs Turk-Sib (P) ..... Aug 46
Shaughnessy, Lord, dying words of ..... Sep 47
Sherman Act, explained ..... Sep 94
Shibe, Thomas S., works for Spalding ..... Aug 65
Shipping Companies, on Pacific Coast ..... Oct 134
Shipping Statistics, by the U. S., Shipping Board ..... Jly 109
Ships, of C. P. R. (P) ..... Sep 48
Shively, Carlton A., reviews stock market ..... Oct 143
Schmitz, Dr. Hermann & I. G. Farbenindustrie ..... Oct 63
Shorthand, Convention of Gregg Assn. ..... Sep 8
Shreve, Lamb & Harmon, & Empire State Bldg. ..... Sep 58
Shreve, R. H., & Empire State (P) ..... Sep 119
Shumaker, Edward E., on business depression (P) ..... Nov 128
Silk, price lower ..... Jly 108
Silver, price lower ..... Jly 108
Silver, story ..... Oct 70
Simmons Company, beds designed by Bel Geddes ..... Jly 52
Simmons, Zalmon G., & beds ..... Nov 55
Simonds Saw & Steel Co., & new building (P) ..... Dec 104
Sinclair, Harry F., sketch (P) ..... Sep 134
Sisson, Francis H., sketch (P) ..... Nov 132
Skelton, Owen R., & Chrysler Corp. ..... Oct 73
Skyscrapers, construction, materials ..... Jly 33
builders & tools used ..... Oct 85
financing of ..... Aug 60
Empire State Bldg ..... Sep 54
elevators ..... Nov 77
prophecy in steel ..... Dec 84
Sleight, Reuben B., wins Bonbright prize ..... Jly 90
Sloan, Alfred P. Jr., & Pullman Co. ..... Jly 66
Slusser, C., & vulcanizer for inner tubes (P) ..... Sep 86
Smith, Alfred E., newspicture of ..... Sep 108
& Empire State Bldg. (P) ..... Sep 52
Smith Corp., A. O., story ..... Nov 62
Smith, Cappelen, & Guggenheim Process ..... Oct 59

Smith, Harry W., & hunting (P) ..... Nov 48
Smith, Herber J., mention ..... Oct 67
Smith Jeremiah, Jr., sketch (P) ..... Sep 92
Smith, Lloyd, R., & A. O. Smith Corp. (P) ..... Nov 62
Smith, Lloyd W., heads Harris Forbes ..... Aug 78
Smoot, Reed, his tariff bill passed (P) ..... Aug 88
Socony-Vacuum case ..... Sep 94
Soldier Field, (Chicago) (P) ..... Nov 44
Sono Art-World Wide, plans of ..... Jly 107
Sooysmith, Charles, & 40 Wall St. building ..... Oct 88
Spalding, Albert G., (P) ..... Aug 66
Spalding, A. G. & Bros., description of ..... Aug 62
Spalding Co., and stock market ..... Aug 90
Spalding, H. Boardman, and sports (P) ..... Aug 66
Spalding, Walter J., chairman of company (P) ..... Aug 66
Sparks, Sir Ashley T., office of (P) ..... Jly 39
Spencer, White & Prentis, Inc., foundation engineers ..... Oct 88
Sporting goods, business ..... Aug 62
Sprague, Col. Albert A., sketch (P) ..... Nov 132
Spreckels, Rudolph, on business depression ..... Nov 128
Squibb, E. R., founder of E. R. Squibb & Sons (P) ..... Sep 73
Squibb, E. R. & Sons, story ..... Sep 69
Stadiums, cost, upkeep (P) ..... Nov 43
Stained glass, story ..... Dec 75
Standard Oil Company of New York, Socony-Vacuum case ..... Sep 94
Stanley, Harold, & Columbia Gas ..... Jly 78
Starrett Brothers, building chart ..... Jly 37
Starrett Bros. & Eken, Inc., and building ..... Aug 60
builders of Empire State ..... Sep 119
builders of Forty Wall Street ..... Oct 85
Statement of Ownership ..... Dec 151
Stearns & Co., Frederick, & insulin ..... Sep 73
Steel, price lower ..... Jly 108
Stein, Manufacturer of make-up ..... Aug 94
Sterling Products, & Drug Inc. ..... Oct 44
Stevens, Eugene M., sketch (P) ..... Dec 107
Stevenson Act, note on ..... Sep 144
Stock Market, reviewed by C. A. Shively ..... Oct 143
Stockton, Philip, & A. T. & T. (P) ..... Sep 41
Stone, Charles A., history (P) ..... Nov 91
Stone & Webster, story ..... Nov 91
Stout, story ..... Dec 60
Straus, Herbert N., to build large Manhattan home (P) ..... Sep 132
Straus, Kenneth, lays cornerstone (P) ..... Nov 131
Straus, Simon W., and building finance (P) ..... Aug 74
Straus, S. W. & Co., mortgage bond house ..... Aug 72
Stutz, Harry C., collection of firearms (P) ..... Aug 86
Styles, story ..... Sep 89
Sugar, price lower, ... Jly 108
Sulphur, story ..... Oct 79
Sultan of Turkey, & harem (P) ..... Nov 87
Swedish Match Company, story ..... Jly 50
Swift, Louis F., office of (P) ..... Jly 39
Symington, Donald, heads Baltimore Mail S. S. Co. (P) ..... Aug 87

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TAKAMINE, DR. JOKICHI, & adrenalin ..... Sep 72
Taplin Brothers, railroad activities ..... Aug 85
Taylor, Harden F., sketch (P) ..... Oct 138
Taylor, Myron C., A. T. & T. (P) ..... Sep 92
Technicolor Motion Picture Corp., story ..... Oct 34
Telephone conversations, most frequent words in ..... Aug 10
Tew, James, & Goodrich Rubber Co. (P) ..... Sep 85
Texas Gulf Sulphur Co., Inc., pictures of plant ..... Oct 78
Thayer, Eugene V. R., sketch (P) ..... Sep 92
Thomas, Dr. John M. (P) ..... Aug 88
Thompson, Gertrude H., & Magma Arizona R. R. (P) ..... Dec 144
Thompson, J. Walter, & Norman Bel Geddes ..... Jly 52
Thompson-Starrett, in building business ..... Aug 60
Thompson, Wm. Boyce, leaves fortune (P) ..... Aug 86
Thornton, Sir Henry & C. N. R., sketch (P) ..... Sep 51
Thorp, Ed., works for Spalding ..... Aug 65
Thurston, Lorrin P., Pineapple story (P) ..... Nov 38
Thurston, Lorrin A., & pineapples (P) ..... Nov 36
Tiffany Stahl Pictures, plans of ..... Jly 107
Tilden, Wm. T., II, gallery feeling for ..... Aug 64
Tiles, story ..... Sep 74
Tin, price lower ..... Jly 108
Todd, John R., and Radio City (P) ..... Aug 88
Tokugawa, Prince Iyesato, to visit U. S. (P) ..... Jly 110
Toledo Scale Company Bldg., designed by Bel Geddes ..... Jly 52
Tom Thumb Golf Course of Mary Pickford ..... Nov 131
Tools, used for building skyscrapers ..... Oct 92
Tools, American, used in building Turk-Sib (P) ..... Aug 46
Toscanini, Arturo, reception in Europe (P) ..... Jly 113
Tower of Babel, picture by Breughel ..... Oct 86
Transamerica Corp., among biggest chain banks ..... Jly 49
Trippe, Juan T., sketch (P) ..... Oct 138
Trust Shares, off 25% ..... Sep 129
Tucker, Dr. Rufus S., and American Founders Corp. ..... Aug 80
Turk-Sib Railroad, (picture-map) ..... Aug 44
Typewriter, Japanese, statistics ..... Oct 24

• • •

UNION MATCH CO., biggest paper-match makers ..... Jly 50
Unions, rules & by-laws ..... Nov 59
United Artists, plans of ..... Jly 107
United Cigar Stores Co., among biggest chain stores ..... Jly 49
United Corporation, story ..... Jly 77
and Carlisle ..... Aug 51
United Drug Co., & Drug Inc. ..... Oct 42
U. S. Rubber Co., growth of ..... Sep 102
U. S. Senate, statistics ..... Oct 24
U. S. Steel Corp., & Empire State ..... Sep 126
United States Trucking Corp., & armored cars ..... Dec 46
Universal Pictures, plans of ..... Jly 107
Urban, Joseph, builds gingerbread castle ..... Aug 89

• • •

VACUUM-SOCONY case, arguments pro & con ..... Sep 94
Vadsco Corp., cosmetic manufacturers ..... Aug 43
Vallee, ("Rudy") (P) ..... Aug 32
Vanadium Corp. of America, intangible assets ..... Nov 20
Van der Vlugt & Brinkman, factory in Rotterdam (P) ..... Nov 100
Van Doren, Carl, (P) ..... Aug 32
Van Horne, William C., building of the C. P. R. ..... Sep 46
Van Sweringen Brothers, take M. O. P. ..... Jly 107
show profit ..... Aug 85
Vauclain, Samuel M., & Baldwin Locomotives ..... Jly 58
Velo-derma, like beauty clay ..... Aug 92
Victor Talking Machine Co., & Camden plant ..... Nov 128
Vivadou, Inc., now Vadsco Corp. ..... Aug 30

• • •

WAGE Scale ..... Aug 80
Wages, of foreigners in U. S. industries ..... Oct 24
Waldorf-Astoria, & Oscar ..... Sep 53
Walker, Elisha, & banks (P) ..... Jly 49
Walker, Madame, and cosmetics for Negroes ..... Aug 92
Wallenstein, Alfred, praised ..... Jly 113
Walt, W. C., & Drug Inc. ..... Oct 112
Walthall, Henry B., & *New Movie Magazine* (P) ..... Oct 136
Warburg, Felix M., given testimonial dinner (P) ..... Jly 112
Warburg, Paul M., opening of Bank of Manhattan (P) ..... Jly 112
Wardman, Harry, loses control of hotels (P) ..... Oct 136
Warner Brothers, plans for ..... Jly 107
Warner Brothers, & sound pictures ..... Oct 34
Washburn, Cadwallader C., & milling industry ..... Nov 83
Waves, permanent, mechanics of ..... Aug 94
Webster, Edwin S., history (P) ..... Nov 91
Weddings, statistics ..... Oct 24
Weeks, Carl, makes American cosmetics (P) ..... Aug 40
Weeks, Louis S., & I. T. & T. building ..... Sep 126
Weetamoe, to race for Morgan syndicate ..... Jly 67
Weinberg, Sidney J., & Goldman, Sachs (P) ..... Oct 136
Weiss, W. E., & Sterling Products (P) ..... Oct 110
Weissinger, Herbert F., Chrysler art department ..... Oct 76
Weizmann, Chaim, resignations (P) ..... Dec 145
Welland Canal, building of (P) ..... Sep 131
Wendel, John G., estate of ..... Sep 133
Western Electric, Inc., A. T. & T. story ..... Sep 39
Westinghouse Electric, in Pittsburgh (P) ..... Dec 49
Wetmore, Frank O., and Firestone ..... Sep 78

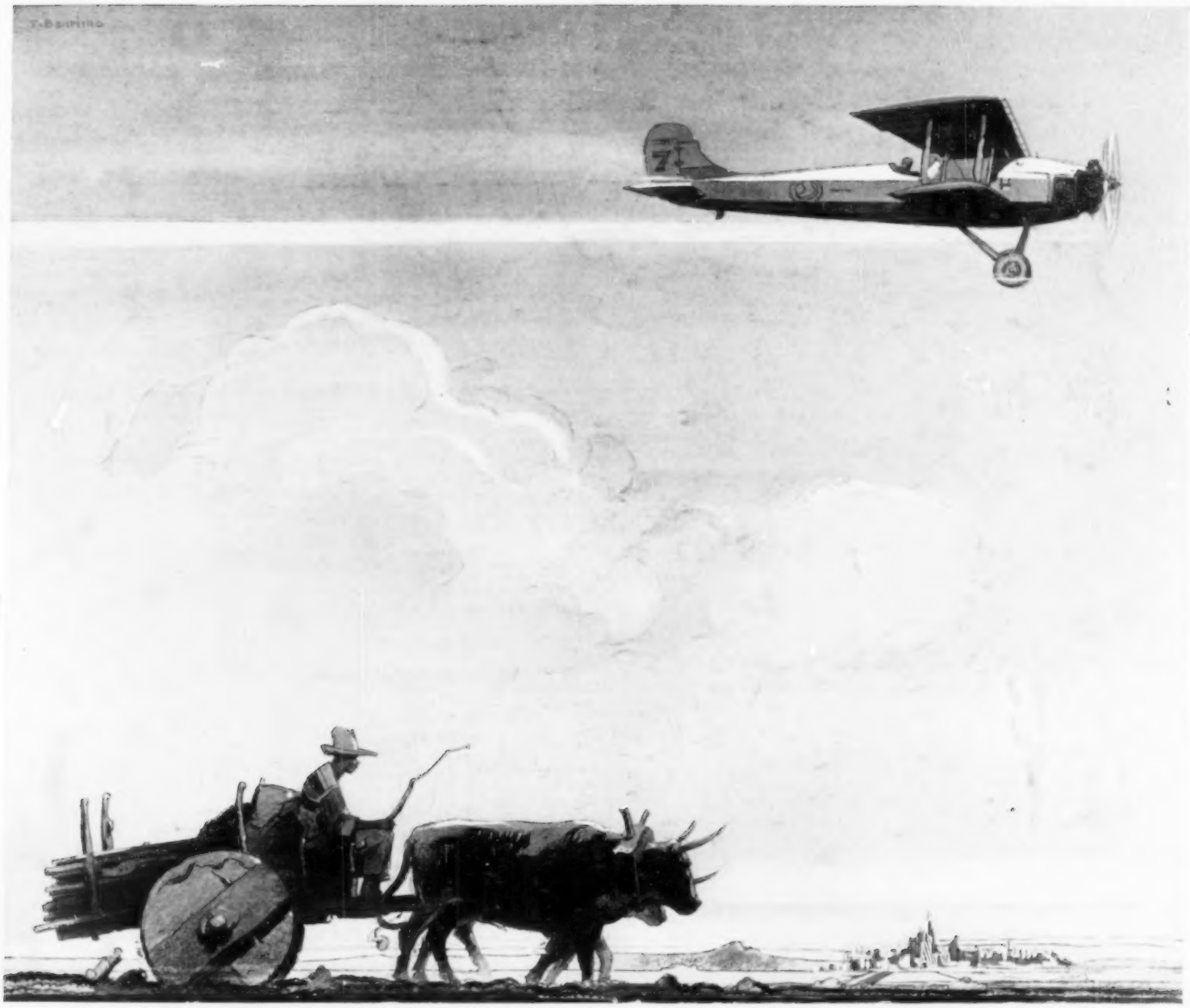
Whaley, George P., Socony-Vacuum dispute ..... Sep 94
Wheatsworth, Inc., and gingerbread castle (P) ..... Aug 89
Wheelock, Wm. H., and building finance (P) ..... Aug 74
White, James Gilbert, retires, (P) ..... Aug 88
Whitehead, B. S., maker of medals ..... Aug 8
Whitehead & Hoag, makers of medals ..... Aug 8
Whitehead, Richard H., & clocks (P) ..... Nov 130
Whitney, John H., & 18th Amendment (P) ..... Nov 136
Wickham, Sir Henry, & rubber ..... Sep 80
Wiggin, Albert H., office of (P) ..... Jly 38
sketch (P) ..... Sep 134
Willard, Daniel, sketch (P) ..... Sep 92
Williams, J. S., & 18th Amendment (P) ..... Nov 136
Williams, Langbourne M. Jr., & sulphur (P) ..... Oct 81
Williams, Nathan B., on Anti-Trust Laws ..... Nov 128
Wilson, Robert, & tire sales (P) ..... Sep 86
Windause, Dr., & cod liver oil ..... Oct 45
Windmill business, statistics ..... Oct 24
Windows, stained glass, pictures ..... Dec 74
Winkler, John K., book on Morgan reviewed ..... Oct 98
Winmill, Mrs. Bobby, & hunting ..... Nov 53
Winthrop, Henry R., to build large home (P) ..... Sep 132
Wire Wheel Corp., & L. A. Adams ..... Oct 20
Wood, Robert E., economic thesis (P) ..... Dec 144
Woodin, Clemuel R., & Berwick, Penna. ..... Jly 86
Woodin, Wm. H., & A. C. F. ..... Jly 62
Woodlock Thomas F., on rail czars (P) ..... Dec 144
Wool, price lower ..... Jly 108
Woolworth, Chester M., & mousetrap business ..... Nov 20
Woolworth Co., F. W., among biggest chain stores ..... Jly 49
Woolworth Tower, height (P) ..... Sep 57
World Broadcasting System, & radio advertising ..... Dec 65
World Fair, models by Bel Geddes (P) ..... Oct 84
Wrigley, Wm. Jr., office of (P) ..... Jly 38

• • •

YACHTS, story ..... Jly 67
Yacht Syndicates, listed ..... Jly 67
Yale University, stadium (P) ..... Nov 44
Yankee Stadium, seating capacity (P) ..... Nov 46
Yeatman, Pope, & Guggenheim Process ..... Oct 59
Yerkes, Charles T., rug collection ..... Oct 48

• • •

ZEDER, Fred M., & Chrysler Corp. ..... Oct 73
Ziegfeld beauty contest winner (P) ..... Aug 29
Zukor, Adolph, office of (P) ..... Jly 39
welcomed in Hungary (P) ..... Jly 110



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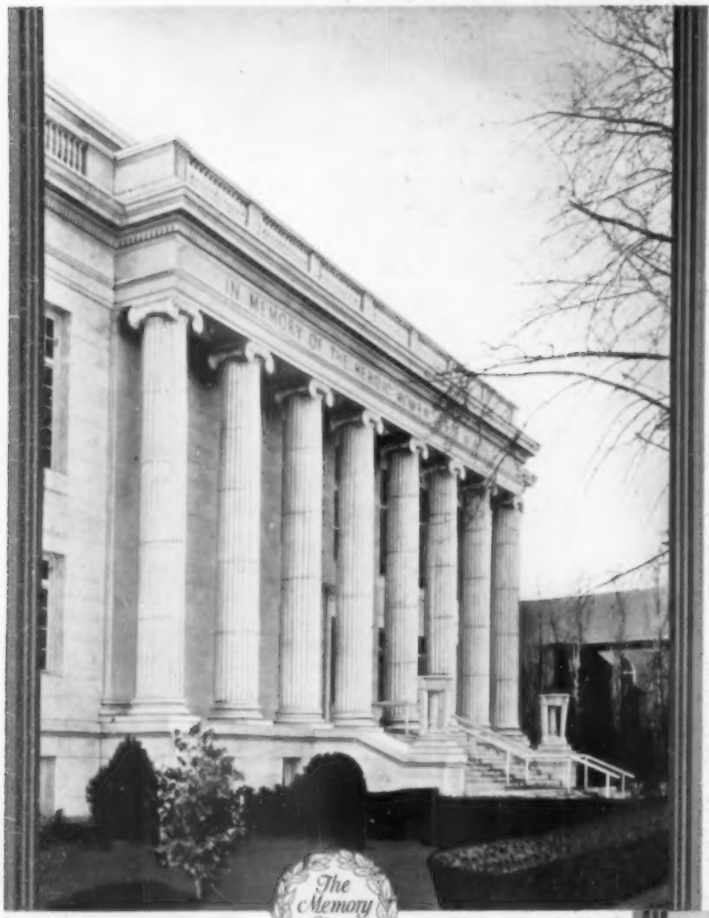

THE first Red Cross Memorial Building, erected in 1915 to commemorate the activities of all the women of the Civil War, both southern and northern, was designed by the architectural firm of Trowbridge & Livingston. It was built of Vermont Marble from the famous Imperial Danby quarries, with White Rutland and Royal Antique for the interior walls.

And now in 1930, another Red Cross Memorial Building designed by the same architects, and built of Vermont Marble from the same quarries, is dedicated to the heroic American women who served the nation in the World War. The new façade is illustrated at the left.

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IN addition to the distinctive beauty of Vermont Marble is its resistance to the wearing effects of climatic conditions. Of these, the most destructive during the course of centuries is moisture. Bulletins of the governmental Bureau of Standards show that monumental grades of Vermont Marble absorb only about one-third as much water as the average of other memorial stones. Vermont Marble is imperishable and everlasting.

VERMONT MARBLE

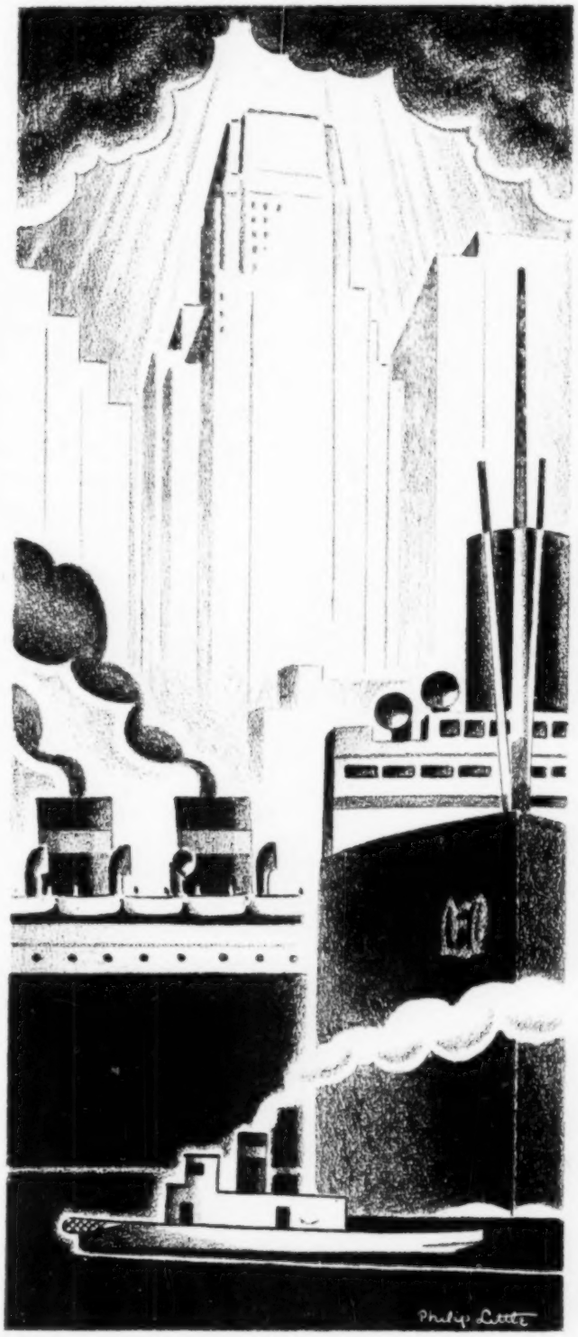
Fortune, July, 1930

FORTUNE is published monthly by TIME, Inc., at 205 East 42nd Street, New York, N. Y. Entered as second class matter January 7, 1930, at the Post Office at New York, N. Y., under the act of March 3, 1879. Subscription rates: One year in the U. S. and possessions, $10; Canada, $10.50; elsewhere, $11.

Vol. 2 No. 1

WORLD CITY OF A NEW ERA

SAN FRANCISCO—BUSINESS HEADQUARTERS OF THE WEST TODAY; TOMORROW ANOTHER GREAT NEW YORK



Today headquarters city of Western commerce, finance and industry, San Francisco owns an admirable place. But as this West spreads wide across the ocean, as the Pacific Era dawns on the awakening of 900,000,000 people in the lands that the ocean borders, San Francisco becomes a city to challenge your imagination!

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Many are the claimants to the leadership in this new era. But out of the mass of claims that conflict, San Francisco's rises clear and clean . . . on fact.

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Often obscured is the fact that 11,000,000 people who live West of the Rockies can be served more quickly and cheaply from San Francisco than from any other single city. Furthermore almost half the people of California live within a radius of one hundred and fifty miles from the foot of Market Street. 1,600,000 people, of greater than average per capita wealth, live within the radius of an hour's ride.

Truly, San Francisco's promise for the future is based upon undeniable facts of the present. *The West is building up another great New York!*

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SAN FRANCISCO

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Split seconds that make you realize the priceless value of that EXTRA MARGIN of SAFETY

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The GENERAL *Dual*-BALLOON 8

SOME OF THE PLACES WHERE YOU MAY DINE IN COMFORT

Governor Clinton, N.Y. · Astor Grill, N.Y. · Hotel Paramount, N.Y. · Hotel Gibson, Cincinnati · Commodore Perry, Toledo · Los Angeles Biltmore, Los Angeles

Ask for the rooms where they have Manufactured Weather

How long before all HOTELS will offer Manufactured Weather to their Guests?

(Top) HOTEL GIBSON *in Cincinnati attracts diners, dancers, and afternoon bridge players to its Roof with Manufactured Weather. (Below) It's never "too warm to dance" in the hotel grill that makes its own weather. Picture was taken in Paramount Grill, New York.*

NOT very long, if you judge from the trend of prominent hostelries today. Dine at the Gibson Roof or tea room in Cincinnati . . . the dining rooms and grill of the Governor Clinton in New York. Dance in the grill of Manhattan's Paramount or Astor.

In spite of oppressive summer weather, your appetite gains zest. It's never "too warm to dance."

However "close" or scorching it may be outside . . . you are refreshed . . . invigorated. The atmosphere is as pleasant as a perfect spring day . . . because these hotels offer Manufactured Weather.

These places are talked about . . . are written up in magazines and newspapers. Word-of-mouth advertising soon spreads the news that here is sure relief from depressing, humid weather. Table linen is fresh and crisp because dust and dirt have been removed from the air. Dainty summer frocks won't soil as quickly. There is a noticeable freedom from smoke, odors and stuffiness, so frequently encountered in popular restaurants.

Entertainers are more vivacious . . . the orchestra is livelier . . . waiters are more courteous . . . because Manufactured Weather provides an agreeable climate which falls within what engineers call the "comfort zone." Air is never too muggy and humid . . . never too dry . . . either in summer or winter. And all the time this conditioned air is alive with gentle motion.

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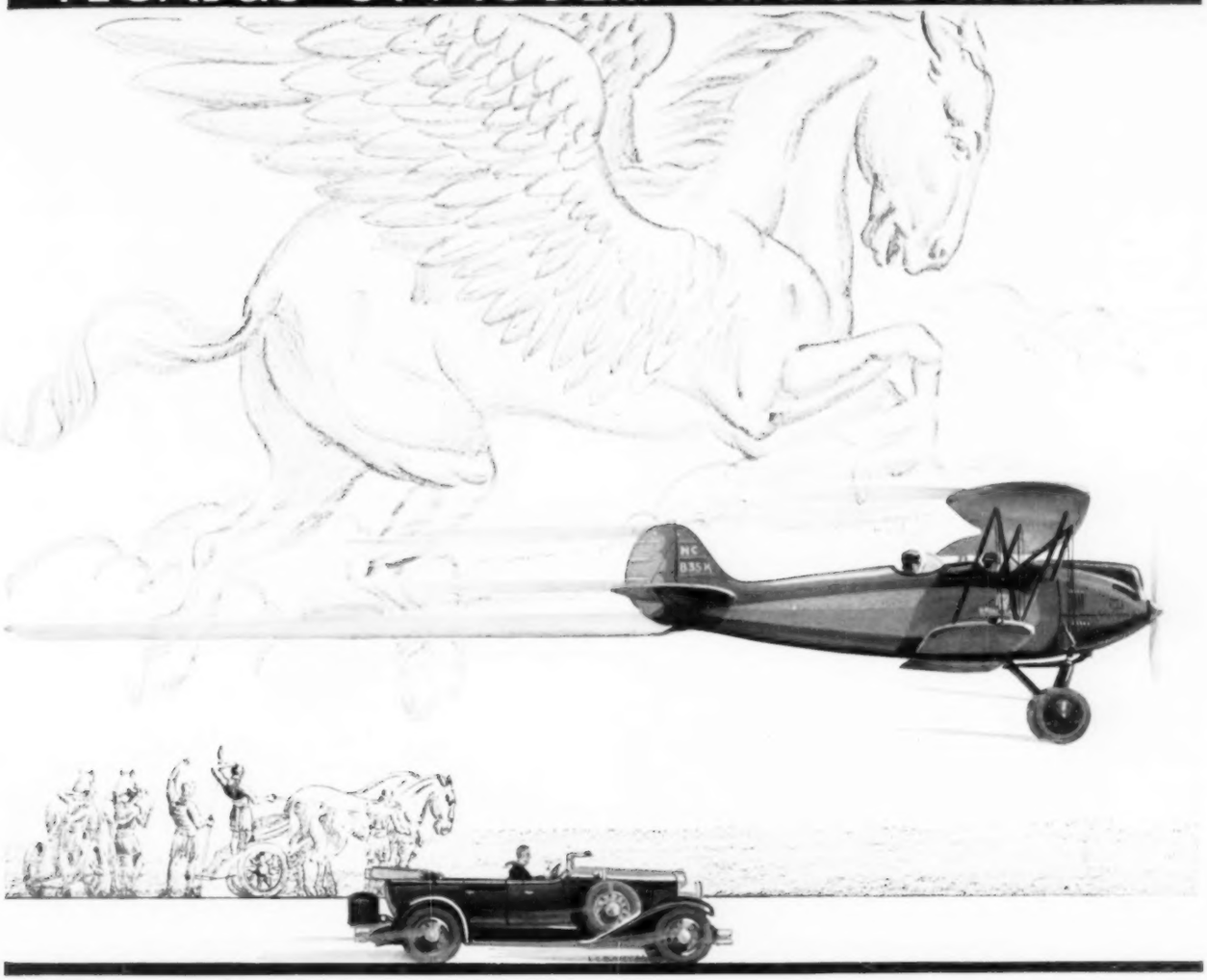

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Off the Record

Hero's Bills

IT was Richard Evelyn Byrd who drew the best parallel between exploration and an essential though often unremunerative phase of business. "Exploration," he said, "is now in a class with abstract research by chemists, physicists, and biologists of two centuries ago. Pasteur . . . " he continued, and he mentioned Faraday. He might have modernized the parallel. One remembers Alexanderson and his alternator. The returns of exploration are therefore confined in the future. A Piltdown Man or Mr. Roy Chapman Andrews' dinosaur eggs may some day confirm the presuppositions of evolutionists, and perhaps a new and strong faith will be builded. An alternator may build a Radio Corporation of America.

But as a matter of fact, exploration also has immediate returns, often red. It cost the United States $32,080,266,968 to send its Army to Europe, but perhaps that exploration needs no mention. In 1925 Admiral Byrd made his début as an explorer. He proposed a base in Greenland, counted on government financial support, supplemented it with support from MacMillan, but even at that the trip is supposed to have ended in debt. In 1926, wiser, he enlisted support from John D. Rockefeller Jr., Vincent Astor, Edsel Ford. Later he said, ". . . [the trip] cost in cold cash about $140,000 . . ." He was a hero when he returned, but he owed about $40,000. Rodman Wanamaker paid the bill for the flight to France, about $200,000 in all. His South Polar trip cost more than $900,000. The Martin Johnson Expeditions were financed by Manhattan bankers for about $2,500,000. Martin Johnson made, for the cinema *Simba* grossed approximately $2,500,000. There were also a book and lectures, the last probably the most trying experience of modern exploration.

In 1926 when Wilkins and Eielson started off on their Detroit Arctic Expedition they were promised $100,000 by a finance committee. The North American Newspaper Alliance gave $25,000; Wilkins himself gave $15,000. But by the time they left, the $100,000 had dwindled to $70,000, and it had cost $40,000 to raise even that. Raising the money, as he later confessed, was a great humiliation to Wilkins. He had to attend luncheons and ask for money; he had to sell his autographed photographs. He then set out and crashed. The next summer he set out again, was again forced down. Practically discredited, he nevertheless tried a third time, in 1928, and made the brilliant flight to Spitzbergen. Detroit canceled the debt for the first trip; the New York *Times* bought the story; a lecture manager sold several thousands of dollars' worth of lectures; Hearst offered $40,000 for the news rights of an antarctic flight. Wilkins emerged from the red.

In 1920 Roy Andrews put whaling and South Sea adventuring aside for a serious effort to find traces of ancient man in Central China. He had been figuring expeditionary costs for about ten years. In consequence President Osborn of the American Museum accepted as correct Andrews' estimate of $250,000 for the project.

"Sorry we can't give it to you," said Osborn.

Roy Andrews sighed, then fell to lecturing and writing for months. But he kept a weather eye out for someone to grubstake him.

He wrote: "As every explorer knows, the effort and nerve strain involved in financing a large expedition far surpasses the difficulties of actual field work." Mr. Andrews is a robust man, but he nearly cracked under the strain of trying to raise $250,000 by lectures at $100 and magazine articles as low as $50.

He went finally to J. P. Morgan. He reported the interview: "Mr. Morgan received me in his magnificent library on Thirty-sixth Street, and for fifteen minutes I told him of my plans and hopes. I had a map of Central Asia with me. It is characteristic of him that he asked only a few questions, but every one was straight to the point. 'How can you get there?' 'What do you expect to find there?' And a few others."

Because Andrews had two important assets of an explorer—charm and logic—he got the money he was after. It was easier than writing and lecturing, but anyone can write and lecture. He went to China and startled the world by finding dinosaur eggs 10,000,000 years old. He was once offered $100,000 for one egg, but didn't sell.

Sometimes explorers do sell, and the practice is altogether ethical. Peary sold a Greenland meteorite to a patron of the American Museum of New York for approximately $50,000. Other explorers have sold ivory, fox skins, native costumes, precious stones, and curios.

The sale of a book often keeps the explorer from declaring himself a financial failure. But the books must be timed to catch the Christmas sale or to appear before the cries of admiration have been stilled. Lindbergh returned to Washington from the Atlantic flight on June 11. His book was published on July 27 and sold about 400,000 copies of the $2.50 edition.

The business of exploration is not an easy business and rarely a very profitable business. Its cost with the years has increased. The expedition of Christopher Columbus cost only $2,115.

Chicago's Kahn

LOUIS ECKSTEIN is the Otto Kahn of Chicago (or, if you prefer, Otto Kahn is the Louis Eckstein of New York). But where Mr. Kahn does not own the Metropolitan Opera House and is not its impresario, Mr. Eckstein does own Ravinia Park and does book the stars who sing therein, and since many of the Metropolitan's stars (and many others of equal or greater notes) have often sung at Ravinia Park, comparison of the two is not amiss.

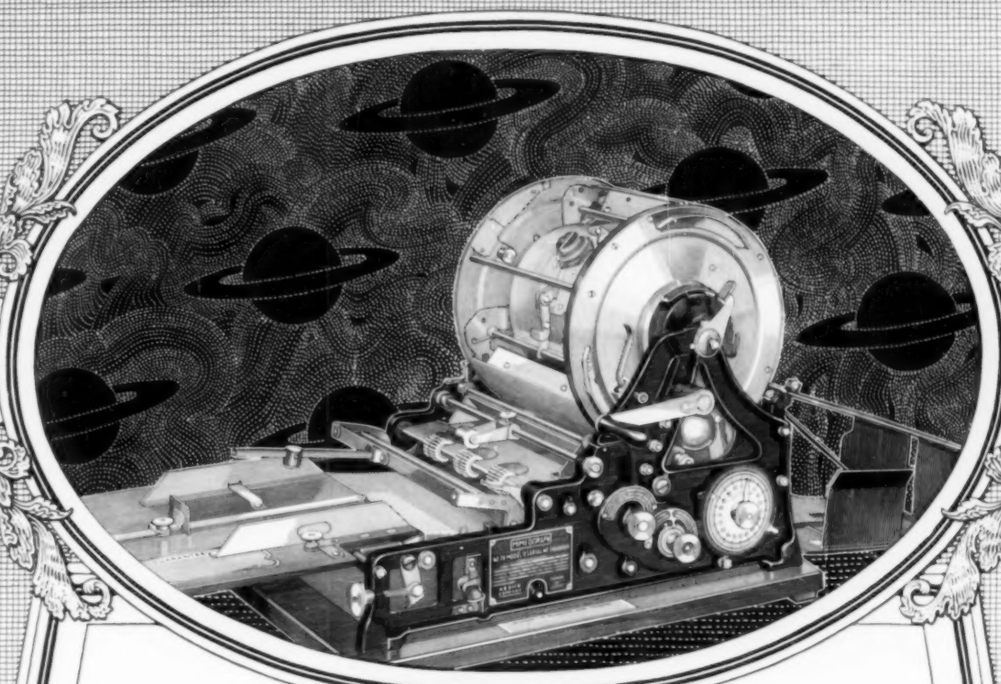
In Mr. Eckstein's office, where ostensibly the business transacted has to do with five-cent confection, hangs a chart. It has nothing to do with sales curves or peaks of production. Ranged across the top are the names of famous opera singers. Vertically and to the left are listed operas and the rôles in each. With minute checks and dashes Mr. Eckstein prepares on this chart the programs which each summer he brings to Ravinia Park. And to hear one of these programs Mr. Kahn each summer makes a special pilgrimage to Chicago.

No retired dilettante is Mr. Eckstein. He is interested in Chicago real estate, in magazines, in chain drug stores, in, as we mentioned, five-cent confections. But he holds dearest fealty to music and once played the violin sufficiently well to be numbered among the strings of the symphony orchestra of his native Milwaukee. It is perhaps here that he learned the great tact (which he and Mr. Kahn possess in common) with which he wrestles with operatic temperament. But the real estate, the magazines, and the drug stores supply the commodity with which operatic temperament is best allayed. To make up Ravinia's 1929 record deficit of $206,887.86, generous Chicagoans contributed $108,493.59. Mr. Eckstein cheerfully paid the balance.

The Life of George

A CENTURY ago the largest employer of negroes was probably some goateed grandee of the cottonfields. Today it is the Pullman Company, which employs 11,000 negroes as porters or maids, 5,000 as car cleaners, mechanics, laborers. The Brotherhood of Sleeping Car Porters, indeed, would draw the parallel uncomfortably close, casting the company in the rôle not of a kindly old "Massa" but of an industrial Simon Legree cracking a blacksnake economic whip over George's head. The Brotherhood regards the Pullman wage scale ($77.50 to $109 a month) as so low that were not George tipped by the public, he would starve. And to the Brotherhood "tipping" is a euphemism for "charity." Certainly the $7,000,000 spent annually by travelers on Pullman tips is a sizable expense that, one might argue, might better be borne by the company.

Be this as it may, the life of George would seem, on the whole, modest in its demands. On the *Twentieth Century*, for instance, he makes but six round trips a month, and on



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New York

longer runs he gets even more time to himself. The *Oriental Limited* run (Chicago to Tacoma, Washington) takes him three days. At Tacoma he lays over for a day at the company's expense, including a free room. When he has made the return trip, which brings the total up to seven days, he goes home for a week. George sometimes likes the lay-over better than does his wife, who upon occasion has telephoned the company to complain that she is tired of seeing her husband around the house so much. If he is especially enterprising, George uses his many leisure hours in some subsidiary pursuit such as practicing law, driving a taxicab, or selling real estate. Such avocations he finds especially useful in the lean traveling season, which is between April 1 and June 15.

If George should lamentably be fired, he need not abandon himself to despair. He can carry his case successively to the district boss, the local committee, the zone general committee, and finally to his Supreme Court: the Pullman Bureau of Industrial Relations, which sits in Chicago every two months. This would seem to provide a safe margin of justice, but the Brotherhood remains unimpressed. Cynically, it points out that the district boss is the person who fired George in the first place, and furthermore that he sits on both the local and general committees. However, despite the sinister figure of the district boss, George stands in less danger of being unjustly discharged than do most unskilled workers.

"Unskilled" is perhaps a little harsh. The qualifications which a would-be porter must possess are, it is true, not impressive: he must be able to lift a berth without straining himself and to stay awake a long time. But, once accepted, he must diligently learn all there is to know about a Pullman car, from ventilation control to the correct way to make down a berth (incorrect is the traveler who asks his porter to "make up" a berth; George appreciates the passenger who uses the correct technical term). He must remember that in some states, such as Ohio, he cannot deliver for sale a package of cigarettes, that in Alabama card playing on trains is not permitted, that he cannot do anything about it when an innocent has been caught by a card shark, that the law forbids free passage of animals and birds. If he works hard, keeps his silver buttons shined, and shows some executive talent, George may in time become an "in charge" porter, which means that he is entrusted with all the duties of a Pullman conductor. There are several thousand such porters. In concluding this life of George, it should be said that there is nothing George dislikes more than being called George.

Nails, Fire Escapes

THE careers of two Chicago women oddly parallel each other not only in that they both have made successes of businesses founded by their husbands but also that these very businesses are, in the nature of their products, unusual. For the one produces fire escapes and the other soft-headed nails—i.e., nails with lead heads that flatten when struck, thereby making the nail water- and rustproof and causing it to be held in great esteem by the carpenters of rainy states. If further parallels be needed: in the veins of each courses some literary blood, one being a rather distant cousin of James Whitcomb Riley, the other being the daughter of a Polish writer and translator, Henry W. Koch. And both are widows, though only one has been married three times.

Mrs. Kathryn Riley Filshie is the one who owns kinship to the Hoosier poet. The nails she manufactures were invented and patented by her late and only husband, Mr. Alexander Filshie. A rather timid man, Mr. Filshie allowed his interest in his nails to remain more or less lackadaisical until his death in 1917, when presumably he ceased to care about them altogether, and it remained for his wife to devote to them the attention they undoubtedly deserved. Interested in machinery, she was already familiar with her husband's small factory. Progressive, she decided to enlarge it and to secure advance orders. These two desires were accomplished almost simultaneously if not instantaneously, and now Mrs. Filshie's nails are sold in South and Central America as well as in the United States and Canada. And her yearly output, she will precisely tell you, is

Your Gas Company is no Magician

and yet

. . . . it furnishes you a fuel with which to heat your home which magically solves the winter-heating problem . . . .

• Gas is clean . . . it burns without generating soot, dust, odor, grease, or vapors. Gas is wasteless . . . there is no ash, no residue. Gas requires no storage space . . . it is delivered, as needed, by pipe. Gas is more accurately and quickly responsive to automatic control than any other fuel. You do not need to order gas in advance. You do not pay for it until you have enjoyed its benefits.

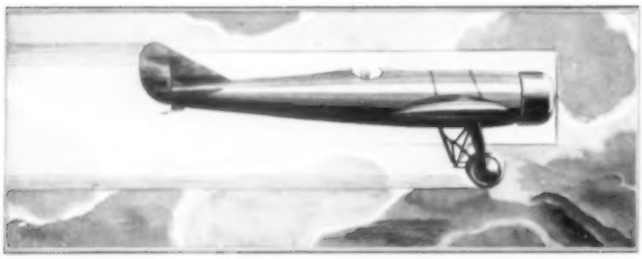
• Is it any wonder that in the past few years the spread of gas-heating, from coast to coast, has been so outstanding that in many sections the house which is *not* gas-heated is admittedly depreciated in value?

BRYANT GAS HEATING

© 1930, BHMC

17885 ST. CLAIR AVENUE ★ **THE BRYANT HEATER & MANUFACTURING CO.** ★ CLEVELAND, OHIO

The SPORT *Airster*



..by Buhl

This new model—the Airster—is especially planned for the sportsman. It is a 3-place low-wing design with a 300 h. p. Wright Whirlwind engine and an exclusive adaptation of the N.A.C.A. cowling that gives it a high speed of 170 m. p. h. It is also built with an ample mail compartment in place of the forward cockpit. It is a remarkable companion plane to the world-famous line of Buhl Airsedans . . . the Senior Airsedan, an 8-place, dual-control sesqui-winged cabin plane, Wasp, Hornet or Cyclone powered and the Standard Airsedan, a 6-place replica of the Senior.

BUHL AIRCRAFT COMPANY
MARYSVILLE -:- -:- MICHIGAN

The Standard Airsedan

These distinguished planes surely merit the very careful consideration of everyone interested in flying, whether it be for fun or fame or fortune. May we send you a photographically illustrated brochure that contains their specifications?

A Buhl Standard Airsedan is the only plane that has ever completed a non-stop refueling flight across the continent and return.

Buhl

195,000,000 nails. In the Illinois Manufacturers' Association she is pointed to with pride. And for those who fear that here they have encountered nothing but a hard- (not soft-) headed business woman, it is a comfort to learn that she has never forsaken her lifelong penchant for painting in oils.

The other, the daughter of the Polish writer, is Mrs. Sophia Delavan Cowles. Of her first husband little is known; her second, whom she married in 1906, was a Mr. Frederick Delavan, whom she met one day when he called on her parents to sell them paintings. With a total capital of $65 they decided to go in business together, and since it was Sophia who was the more alert character, they chose the hair foundation business, a not unprofitable venture since pompadours were then very much the fashion. In 1912, when hair foundations began to look as ridiculous as they sound, Mrs. Cowles with a facile gesture switched to the manufacture of dolls' wigs. When she was divorced shortly thereafter, she had built a business of $750,000 yearly with little assistance from her husband other than bookkeeping.

Her decision at that time to retire from business life was upset by her meeting and marrying Mr. John Taylor Cowles, two years an octogenarian and the inventor of the fire escape counterbalance. It was unfortunate, if she really wanted rest, that she ever visited his factory, because its inefficiency so appalled her that she promptly decided to run it herself. When Mr. Cowles died two years ago, she was and had been for some time in complete charge.

Each morning at 7:30 Mrs. Cowles now holds a conference with her foremen at the factory. The foremen one hour later are chauffeured to their regular places of labor, and Mrs. Cowles disappears to an office which she keeps grimly locked and from which she is in constant and mysterious communication with architects and builders. She is extremely popular with union labor, always an advantage, and the Cowles Fire Escape Works of Chicago is undoubtedly that city's outstanding company of its line. Her fire escapes grace such buildings as the Chicago Board of Trade, the Bismarck, Drake, and Seneca hotels, the Palmolive Building, and many another. She is less often to be seen, however, clambering on one of these fire escapes than on new ones under construction.

Alaskan Argosy

LAST fall Captain John Backland Jr. almost lost his ship. Young, sturdy, square-jawed, he restlessly paced the deck of his four-masted schooner, the *C. S. Holmes*, frozen tight in the pack ice off Alaska. Some cases of dynamite saved the day, but it was a close shave. Captain Backland, at twenty-six, captain of his own ship and sole proprietor of the Midnight Sun Trading Company, had met and conquered another crisis in his business career. For twenty years his father had sailed north each spring with a strange cargo of imitation silks, cheap trinkets, lard, gaudy blankets and had brought back in the fall a hold crammed with furs. Backland Jr. went along too, as ordinary seaman and finally as first mate. It took him six years to get through the University of Washington because he spent every spring term in the Arctic. When his father died, young Backland gave up all thoughts of Oxford and took the responsibility for the annual voyage on his broad shoulders. Two years ago he made his first trip as captain. His route was the one his father followed for twenty years in the *C. S. Holmes:* straight north from Seattle through Bering Strait between Alaska and Siberia, and then a series of stops at tiny, desolate specks of settlements along the coast of northern Alaska—Cape Prince of Wales, Shishmaref, Kotzebue, Point Hope, Wainwright, and, finally, Point Barrow. The captain gets back early enough each fall to see the important football games. He passes the winter in leisure, sometimes in California, sometimes at home in Seattle, where he debates with his sister such questions as whether she is to have an airplane or he is to get himself a Rolls. It will not be long before Captain Backland will be voyaging to the North once more on the highly profitable business of the Midnight Sun Trading Company.

Does today's trend toward GROUP BANKING hold a lesson for the national advertiser?

"Now, gentlemen, I do not know whether any of you have ever lived in a town where there has been a bank closing. But if you have, you have some appreciation of what it means to have the savings of the thrifty people of the community, accumulated over 15, 25, or 30 years, wiped out and destroyed in an overnight catastrophe." . . . *testimony of leading banker before House of Representatives Committee on Banking and Currency, April 16, 1930.*

GROUP BANKING PREVENTS BANK FAILURES

The ideas of the people who read your message are changing all the time

Last year 643 banks closed their doors in the faces of dismayed depositors; 487 in 1928; more than 5,000 in the past ten years.

Most of these tragic failures resulted from one fundamental cause. Business and living conditions had changed, but banking had stayed the same. Too many banks had fallen out of step with the modern tempo. Too many bankers had kept on doing things in the same old way.

But "the same old way" is being rapidly displaced. *Group banking** has been devised; a new means has been found to stem the rising tide of failures. Under this innovation everyone benefits, small banks even more than large. There is more profit for stockholders, greater strength for depositors and greatly increased service to the community.

In two years the idea has spread rapidly. Banks in the far west, in the northwest and in the south have been quick to adopt it. So have banks in New York and New England. In every section of the country its advantages have been seen and reached for.

New Methods Needed in Advertising, Too

When bankers, the most conservative of business men, begin to make sweeping changes in their methods, it's time for the advertiser to sit up and take notice.

Think back over your own procedure of the last few years. Have you and your agency been content to go on operating in the "same old way?" How long has it been since the introduction of any ideas fundamentally new?

New methods and new ideas are more apt to come from a new agency, especially one which has been organized on the basis of industry's latest requirements. Dyer-Enzinger is such an agency. A merger of an eastern and a western company, it is practically a new agency, with a staff of seasoned advertising men of the new school, in tune with the new order of things, prepared to render an up-to-the-minute advertising service.

Testing Copy in Advance Multiplies Value of Space

In each department of our work, you will find features which all agencies must eventually adopt if their clients are to meet the severe competitive conditions of today.

At every point in our procedure we try to do away with guesswork. The method of handling copy is an example. Before investing one dollar of our clients' money in expensive art work, plates or advertising pages, we determine *by test* the advertisements which are most likely to make sales at a profit. Even if we took no other precaution to increase the effectiveness of your expenditure, this one alone would multiply the value of every inch of space on your schedule.

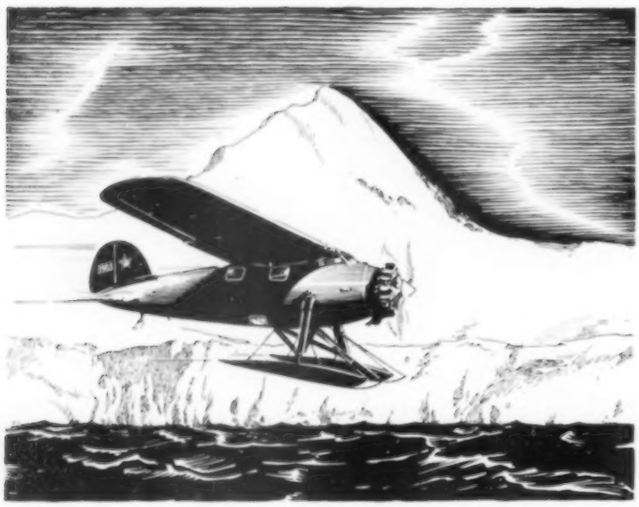
We have some interesting *ideas* to offer. One for cigars or cigarettes. One for laxatives. One for a company whose product or service contributes to public health, and another for the institution whose welfare touches upon improvement in the conduct of business routine.

A letter from you will be treated confidentially and will bring a call from that individual in our organization best suited to discuss your aims and ambitions.

DYER-ENZINGER COMPANY, INC.

New York · Chicago · Milwaukee

*Recently, one of the most important of the banking groups, the Wisconsin Bankshares Corporation, became a client of ours. Observation of new methods in banking prompted the above remarks on advertising.



— and he named it

"LOCKHEED MOUNTAIN"

It stands at the bottom of the world, majestic and perennially snow-covered . . . Captain Sir George Hubert Wilkins was the first man ever to sight this Antarctic peak and he named it "Lockheed Mountain"—in honor of the ship from which he discovered it.

Captain Wilkins chose a Lockheed for his polar expeditions by air because he knew "it was the finest ship available." He flew it over the top of the world on a 2,200-mile non-stop flight from Point Barrow, Alaska, to Spitzbergen. Later he took it, as one of two Lockheeds, to the Antarctic.

Captain Wilkins—pioneer explorer of both the Arctic and Antarctic by air—and the Lockheed which he used in his history-making polar flights

Captain Wilkins' Lockheeds were flown on wheels, skis and pontoons — in temperatures which ranged from 110 degrees above zero to 54 degrees below! And today Captain Wilkins' original Lockheed, the second ever built, is still in active service!

The record of Captain Wilkins' ship conclusively proves the stamina, safety—*and the speed*—that are built into every Lockheed.

DETROIT AIRCRAFT
LOCKHEED
VEGA

DETROIT AIRCRAFT

FORT AND CAMPAU STREETS, DETROIT

CHANIN BLDG., NEW YORK :: ROOSEVELT BLDG., LOS ANGELES

LOCKHEED AIRCRAFT CORPORATION
EASTMAN AIRCRAFT CORPORATION
RYAN AIRCRAFT CORPORATION
AIRCRAFT PARTS COMPANY, INCORPORATED
PARKS AIR COLLEGE, INCORPORATED
PARKS AIRCRAFT CORPORATION
BLACKBURN AIRCRAFT CORPORATION
AIRCRAFT DEVELOPMENT CORPORATION
MARINE AIRCRAFT CORPORATION
GROSSE ILE AIRPORT, INCORPORATED
GLIDERS, INCORPORATED
DETROIT AIRCRAFT EXPORT CORPORATION

Statistics

IN the jerkwater station of North Redwood, Minnesota, a twenty-year-old boy, its station master, breaks open an unclaimed crate of watches, shouts enthusiastically, "Come and buy!" Town loungers, travelers, railroad men crowd into the station at his call and, in between selling tickets, he sells them watch after watch. This is the year 1886. It marks the start of Sears, Roebuck & Co., which did in 1929 a $443,452,640 business.

Young Dick set up shop with no debts, no liabilities, no expenditures, and a stock that looked magnificent to his eyes—500 odd watches thrown into his lap, a gift from fate, a dazzling promise of fortune that was more than the usual rainbow, a promise that turned into a ledger of long figures.

. . .

Forty-four years ago Sears' office was the waste space in a ticket collector's cage; today the mail order houses, retail stores, and warehouses of Sears, Roebuck & Co. cover 567 acres of floor space and last year's sale crop averaged about $782,103 an acre. Then he sat up at night writing letters in long hand to his railroad friends telling of his merchandise; today approximately 75,000,000 catalogues and other pieces of direct mail advertising are produced annually and distributed by the company. Then he was owner, president, salesman, and counter clerk in one; now there are 38,405 employees on the pay roll and the company adds 4.5 employees every day, including Sundays and holidays, and has done so for the last ten years. Then he had just one article of merchandise; now 46,000 different articles are sold—home barber outfits and aviators' equipment, lip sticks and Colonial clocks, horse blankets and bath salts, veterinary instruments and pianos, hair pins and the works of Havelock Ellis, Elinor Glyn, Walter Pater, James Oliver Curwood.

. . .

And in its prices it is equally catholic. Sears, Roebuck & Co. delivers, postage prepaid, a hank of a thousand beads for a nickel or a diamond ring for $520 or a complete house for $18,000.

. . .

Annually Sears, Roebuck uses 5,000,000 pounds of wrapping paper and, to tie the packages thus wrapped, 550,000 pounds of twine and 550,000 pounds of tube rope. If this paper were converted into one strip a foot wide, the strip would wrap around the world twice and if the twine and the rope were tied end to end, it would circle it two and a half times. Annually it sells 25,000,000 rolls of wall paper, which makes it the largest retail distributor of wall paper in the world.

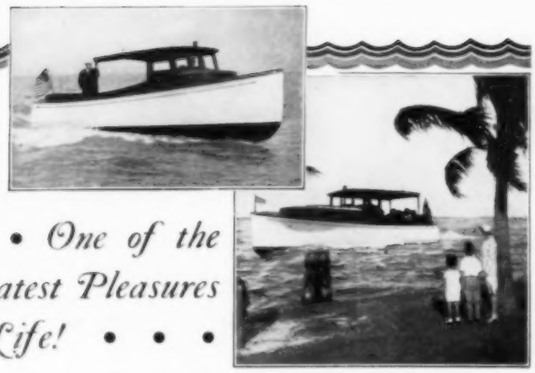
. . .

For this flood, the city post office is not adequate. To handle its goods a special mail service terminal is maintained by the government at the Sears, Roebuck Chicago mail order plant. In 1929, this terminal handled 13,375,636 pieces of parcel post, which meant that approximately 3,500 sacks were dispatched in the final "tie out" each day, an average of 100 a minute hurtling through the air from mail tables to chutes, from chutes to trains.

A second terminal is operated by the government at the Sears, Roebuck Philadelphia plant. And these two terminals, in the volume of parcel post handled, rank sixth and eighth on the list of the first ten railway mail service terminals.

The postage bill is staggering. For the year 1929 it was $11,256,943, a little less than twice as much as the cost of manufacturing all the stamps and stamped paper produced for the government during the last fiscal year. Or, putting it in still another way, it was 1.8 per cent of the total postage bill of the United States.

A total of 16,989 auto truck loads of parcel post was delivered from the Chicago mail order plant to various depots within the city in the last year.



• • • *One of the Greatest Pleasures in Life!* • • •

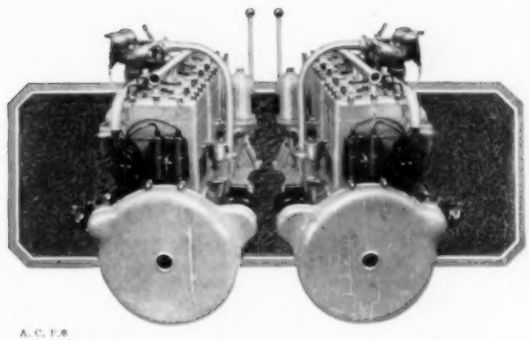
CRUISABOUTING is one of the greatest pleasures in life. A Cruisabout is big enough to comfortably take you and your friends or family wherever you want to go—small enough to be purchased, operated and maintained at lowest possible cost.

There are three Cruisabout models to meet every boating requirement. The Single Cabin Cruisabout with berths for four and 13 mile speed sells for $3585. The Double Cabin Cruisabout with a private stateroom and 13 mile speed sells for $4185 and the Day Cruisabout with a magnificent cockpit 17 feet long and 18 mile speed sells for $3685. Speeds up to 26 miles an hour can be had at very slight additional cost.

Write for the Cruisabout booklet "N" illustrating and describing these magnificent yachts. Cruisabouts are displayed by Bruns-Kimball & Co., 5th Ave. & 15th St., New York City.

RICHARDSON BOAT COMPANY, INC.
456 Sweeney Street, North Tonawanda, N. Y.

Richardson Cruisabouts



A. C. F.*
BANFIELD
CHRIS-CRAFT*
CORSAIR "26"
DART*
GAR WOOD "40"
HACKERCRAFT*
KING SEA-SKIFFS
KYLE "43"
MATTHEWS*
MINETT-SHIELDS
ROBINSON SEA GULL
SEA LYON "40"*
STEPHENS
SUNBEAM "46"
WHEELER "PLAYMATES"*
Foreign
BRITISH POWER BOATS
OSBORNE CRAFT—*England*
CLAUS CRAFT—*Germany*
CHANTIERS NAVAL EXCELSIOR
DESFUJOLS—*France*
ORTHOLAN—*Argentine*
*Optional

DEPENDABLE POWER

The wide acceptance of SCRIPPS motors by so many prominent builders of standardized craft who offer them as standard or optional equipment is significant of SCRIPPS unfailing dependability.

Fifteen models—15 to 200 Horse Power
High speed and medium duty.

Interesting literature will be mailed upon request.

SCRIPPS MOTOR CO., 5844 LINCOLN AVENUE, DETROIT, MICH.

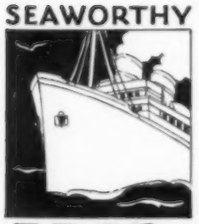
SCRIPPS

• THE MOTOR THAT CROSSED THE ATLANTIC •

Hackercraft . . .

By All Odds America's Fastest Speed Boats

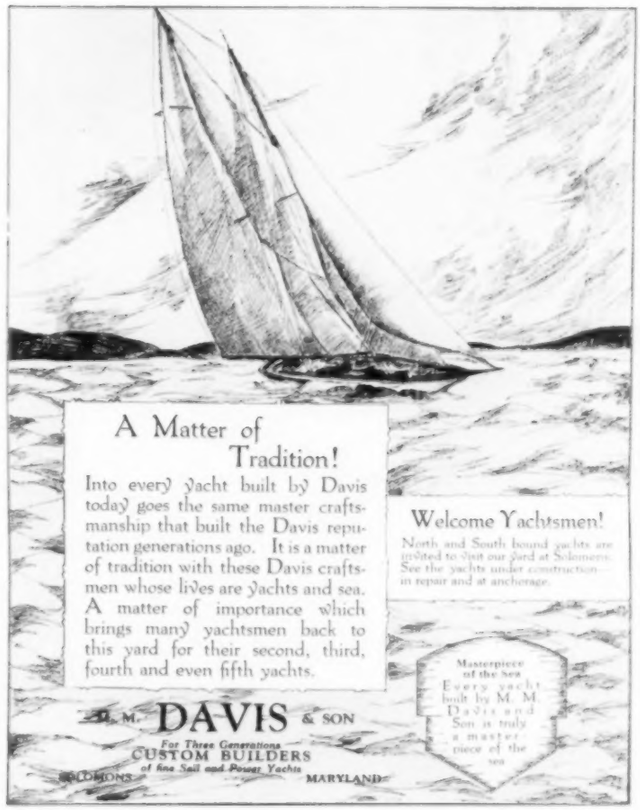
SEAWORTHY



The distinguished grace, the beauty of line, smoothness of contour and the lithe, keen speeds of Hackercraft are features that cannot be disguised. But tear a Hackercraft to pieces literally or figuratively! What do you find? The most impressive array of specifications ever used on any stock runabout! To begin with, genuine Honduras mahogany is used throughout and reinforced by white oak keel, stem, chines and framing. Genuine leather accounts for the beautifully groomed appearance of its cockpits. A superior number of main frames and intermediates close set to reinforce the hull above and below the chine are used. Double planked, diagonally laid ¼-inch bottoms, copper riveted to intermediates and small frames and screw fastened besides to insure the utmost ruggedness. Hackercraft also have collision bulkheads. Despite these and many other impressive advantages and additions to their design Hackercraft are by all odds the fastest boats of their kind afloat—the safest to drive—the keenest to own. Of course we'll send our catalog. Or see these boats on display.

HACKER BOAT COMPANY
548 River Drive Mt. Clemens, Mich.

HACKERCRAFT
AMERICA'S FASTEST SPEED BOATS


A Matter of Tradition!
Into every yacht built by Davis today goes the same master craftsmanship that built the Davis reputation generations ago. It is a matter of tradition with these Davis craftsmen whose lives are yachts and sea. A matter of importance which brings many yachtsmen back to this yard for their second, third, fourth and even fifth yachts.
Welcome Yachtsmen!
North and South bound yachts are invited to visit our yard at Solomons. See the yachts under construction—in repair and at anchorage.
Masterpiece of the Sea
Every yacht built by M. M. Davis and Son is truly a masterpiece of the sea
M. M. DAVIS & SON
For Three Generations
CUSTOM BUILDERS
of fine Sail and Power Yachts
SOLOMONS MARYLAND

It had to be good to get where it is

Drink
Coca-Cola
Delicious and Refreshing

TODAY
even in the desert they stop for
the pause that refreshes

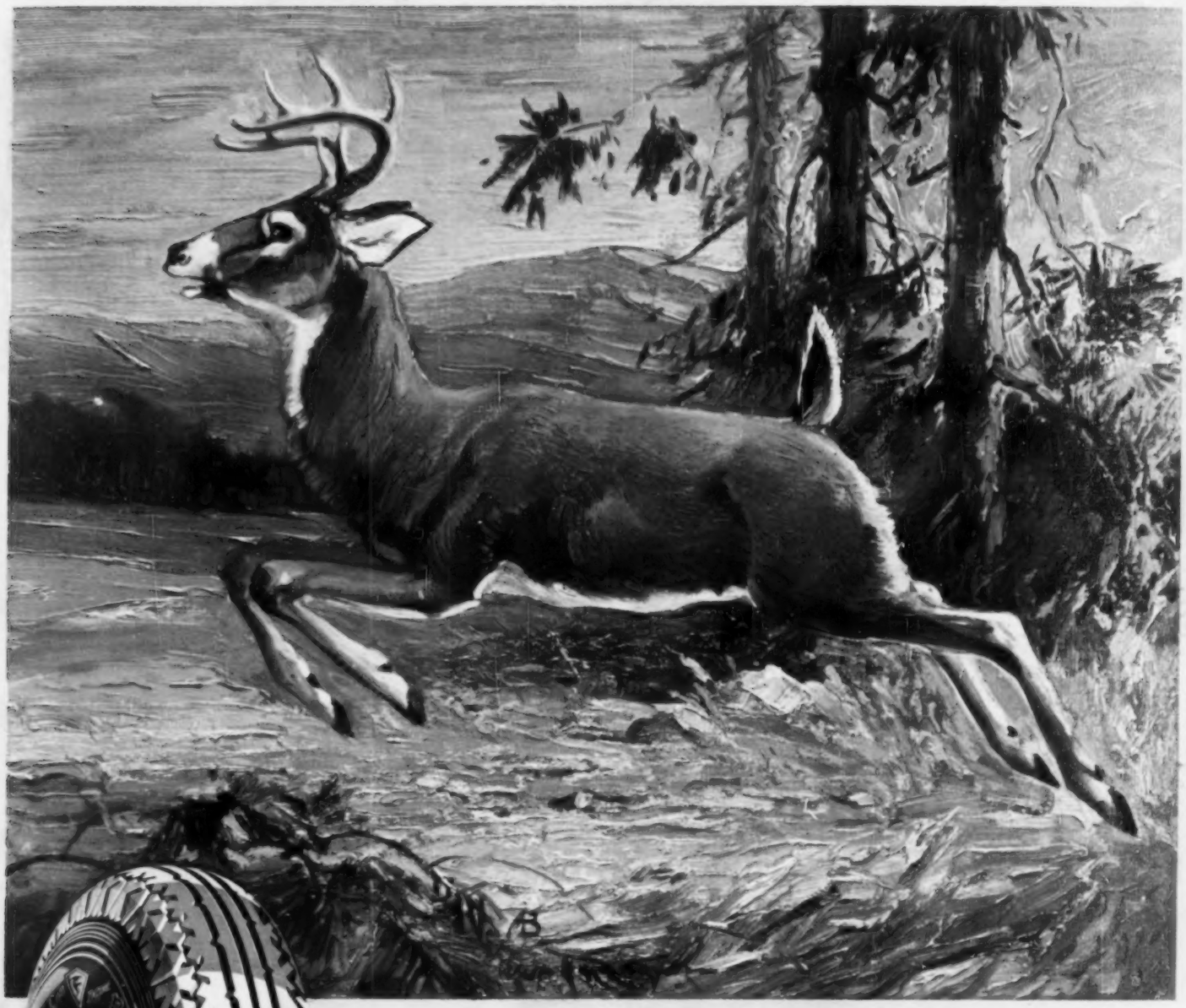
AT KINGMAN, hot-spot of the Arizona desert, the big T. A. T. monoplane swoops to earth. Out come the passengers—to stretch, relax and find *the pause that refreshes*. The adobe station bakes in desert sunshine. But quickly they move inside—to inviting shade and a big ice-box filled with Coca-Cola. What a place for such a drink! » » And yet nobody is surprised. They've found it everywhere across the continent . . . at Thirty-fourth Street and Seventh Avenue, New York; at Columbus, Indianapolis, St. Louis, Kansas City, Wichita, Waynoka, Clovis, Albuquerque, Winslow. And they'll find it at the Grand Central Air Terminal, Los Angeles. » » All the big passenger planes come down at intervals to let passengers put their feet on the ground. And ice-cold Coca-Cola, a-tingle with delicious taste and a cool after-sense of refreshment, is always there.

THE BEST SERVED DRINK IN THE WORLD

A pure drink of natural flavors served ice-cold in its own glass and in its own bottle: The crystal-thin Coca-Cola glass that represents the best in soda fountain service. The distinctive Coca-Cola bottle you can always identify; it is sterilized, filled and sealed air-tight without the touch of human hands, insuring purity and wholesomeness. The Coca-Cola Company, Atlanta, Ga.

LISTEN IN ~~ Grantland Rice ~~ Famous Sports Champions ~~ Coca-Cola Orchestra ~~ Wed. 10:30 to 11 p. m. Eastern Daylight Saving Time ~~ Coast to Coast NBC Network.

NINE MILLION A DAY

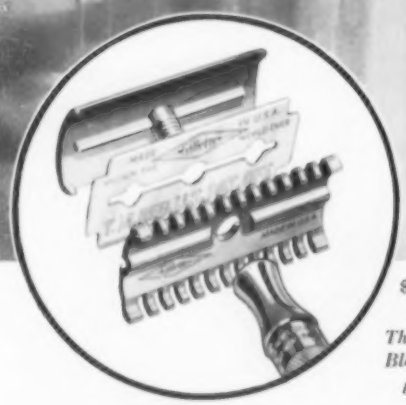


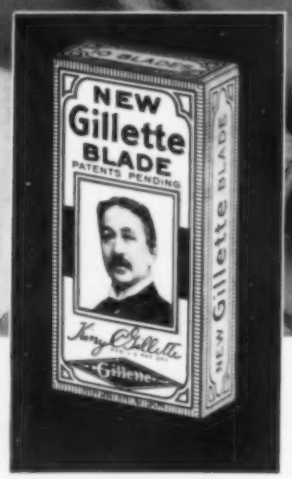
SPEED

FIRESTONE Gum-Dipped Tires have always been associated with speed. They have been on all the winning cars in that classic of automobile racing, the 500-Mile Indianapolis Race, for ten consecutive years. They hold all world records on road and track for speed, safety, endurance and mileage. The new Supreme Balloon with its heavier Gum-Dipped cord construction, more rubber and broader nonskid tread, is the safest tire ever built for comfortable travel at any speed. Its superb workmanship and striking appearance will enhance the finest motor cars.

Firestone
Supreme Balloon

New blade resists rust!





$1.00 *for ten;*
50c for five.
The New Gillette Blades in the new green packet.

A shake is all the drying this razor needs

NOW you won't feel guilty if you put your razor away without wiping it off after shaving—not if your razor is a New Gillette!

That last tedious step which every man hates—unscrewing the razor, taking out the blade, wiping all the parts—is banished forever by the New rust-resisting Gillette Blade, which needs no drying.

And that's only one reason for the tremendous demand for the New Gillette. It can't "pull"—thanks to the reinforced corners of the new razor cap, and the cut-out corners of the new blade. The channel guard, the new rounded-back guard teeth—these are a few of the remarkable features of the New Gillette Shave.

Ten million men can already tell you here's the biggest bargain in shaving comfort ever offered—one dollar for the New Gillette Razor in a handsome case with one New Gillette Blade. Additional new blades are priced the same as the old—one dollar for ten and fifty cents for five, in the new green packet. Drop in at your dealer's today.

The New De Luxe Razor and Blade

Both are now available at the better shops. The Gillette New De Luxe Razor has all the sweeping improvements of the popular-priced razor, plus luxury in heft, in precise machining and in delicate balance. Eight handsome styles range in price from $5.00 to $75.00.

And every De Luxe set includes ten Gillette New De Luxe Blades of Patented Kro-man steel, which combine rust-resistance and the ability to hold an exquisitely keen edge. They fit any Gillette Razor—and are available at the better shops at $2.00 for ten.

TRADE Gillette MARK

GILLETTE SAFETY RAZOR CO., BOSTON, U. S. A.

The New Gillette Shave

Wood block engraving by Howard McCormick
from Mural by Arthur Covey

NORTON

Grinding Wheels
Grinding and Lapping Machines
Abrasives for Polishing
Refractories
Pulpstones
Porous Plates
Floor and Stair Tile
Abrasive Aggregate

HEAT, TERRIFIC HEAT, and the electric furnaces give us abrasives—hard, sharp, tough. More heat, through the medium of huge kilns, scientifically applied and controlled, bonds the abrasive into Grinding Wheels, Refractories, and Floor and Stair Tiles — all important in the progress of industry . . . .

Norton Company, Worcester, Mass.

The New York Trust Company

Capital, Surplus and Undivided Profits $47,000,000

DOMESTIC
and
FOREIGN BANKING
FACILITIES

Trust Services

Personal Services

---

100 BROADWAY
40TH STREET AND MADISON AVENUE
57TH STREET AND FIFTH AVENUE

$305,000 for 125 Million Impressions

[EXAMPLES OF THE EFFECT OF A FEE SYSTEM ON ADVERTISING PLANS]

$301,000 for 2500 Million Impressions

ADVERTISING copy is much admired today, whether it be a unique idea, a compelling piece of writing, a dramatic illustration, an electrifying headline, or a vivid use of type.

Space-buying, a less dramatic element, arouses less discussion, though as a matter of fact, the space-*plan* may be as important as the space-*content*.

One reason why space-buying is given relatively less consideration than other phases of advertising is because there may have developed a tendency to consider it more or less "mechanical"; because some advertisers and agencies may have fallen into the habit of adapting the methods of others.

We here present the space problems of two campaigns of equal size which raise primary questions bearing on the productive value of similar appropriations. Both campaigns were for drug products; the one, a class product selling to a maximum of 500,000 consumers; the other, a mass product used in 15 million homes. The principles however are equally applicable to other lines.

The class product is one year old, is used daily, is consumed at the rate of one unit or more per month, appeals primarily to consumers under 40 with incomes over $4,000, and is one of many competing items.

The mass product is thirty years old, is consumed at the rate of one unit or less per year, appeals primarily to consumers over 40, with incomes under $4,000, and is the leader in its field.

The 1930 sales-volume of each product, in the United States and Canada, is running about the same—not over 10% difference. The space appropriations do not vary 5%.

The following is an outline of the two space programs:

Class Product: Six half pages and two full pages in five magazines with a circulation of 12 million (a total of 96 million advertising impressions) . . . eight pages in seven magazines with a circulation of 4 million (32 million impressions) . . . the total number of advertisements (insertions *times* circulation) amounts to 128 million . . . a trade paper campaign of two-page and four-page units before and during the early stages of the consumer advertising . . . a sampling plan which produced 1,200,000 consumer inquiries.

Mass Product: Sixty-five insertions using 2-inch space in 350 newspapers with 30 million circulation, constituting the primary part of the schedule (1950 million advertising impressions) . . . in addition 15 insertions of 8-inch space in these 350 papers with 30 million circulation (450 million impressions) . . . six small-space insertions in 20 magazines with 20 million circulation, (120 million impressions)—a total of more than 2500 million impressions. No trade papers, no sampling.

As will have been seen, these two space programs, for products with appropriation and sales volume about the same in each case, are as different as may well be imagined.

Both campaigns were analyzed and produced by the same people. Both have received the endorsement of authorities. Both have proven highly productive. *But this is the point: No formula was followed in either case. Each space problem was judged on its merits. Each plan was based on the job to be done.*

THIS unbiased method of buying space is the logical result of the unique fee system under which we work. There is no penalty on the agency for choosing one course of action as compared with another, for its profits are divorced from variations in the size or allocation of a client's appropriation. It is difficult to see how any other plan could better conduce to unbiased action.

Business executives and bankers interested in the effects of this policy on the economics of space buying, or in the reasons behind the choice of media in the two problems outlined above, are invited to write for information.

COWAN & DENGLER

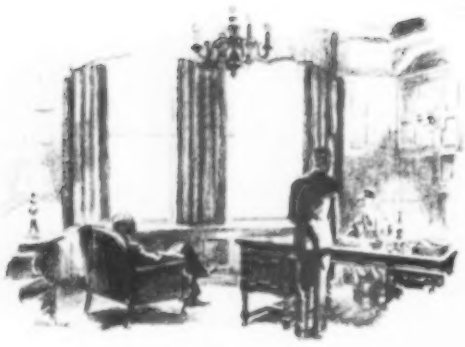
ADVERTISING • MERCHANDISING • SALES COUNSEL

NEW YORK

TIGH
BOU

HTLY

UND

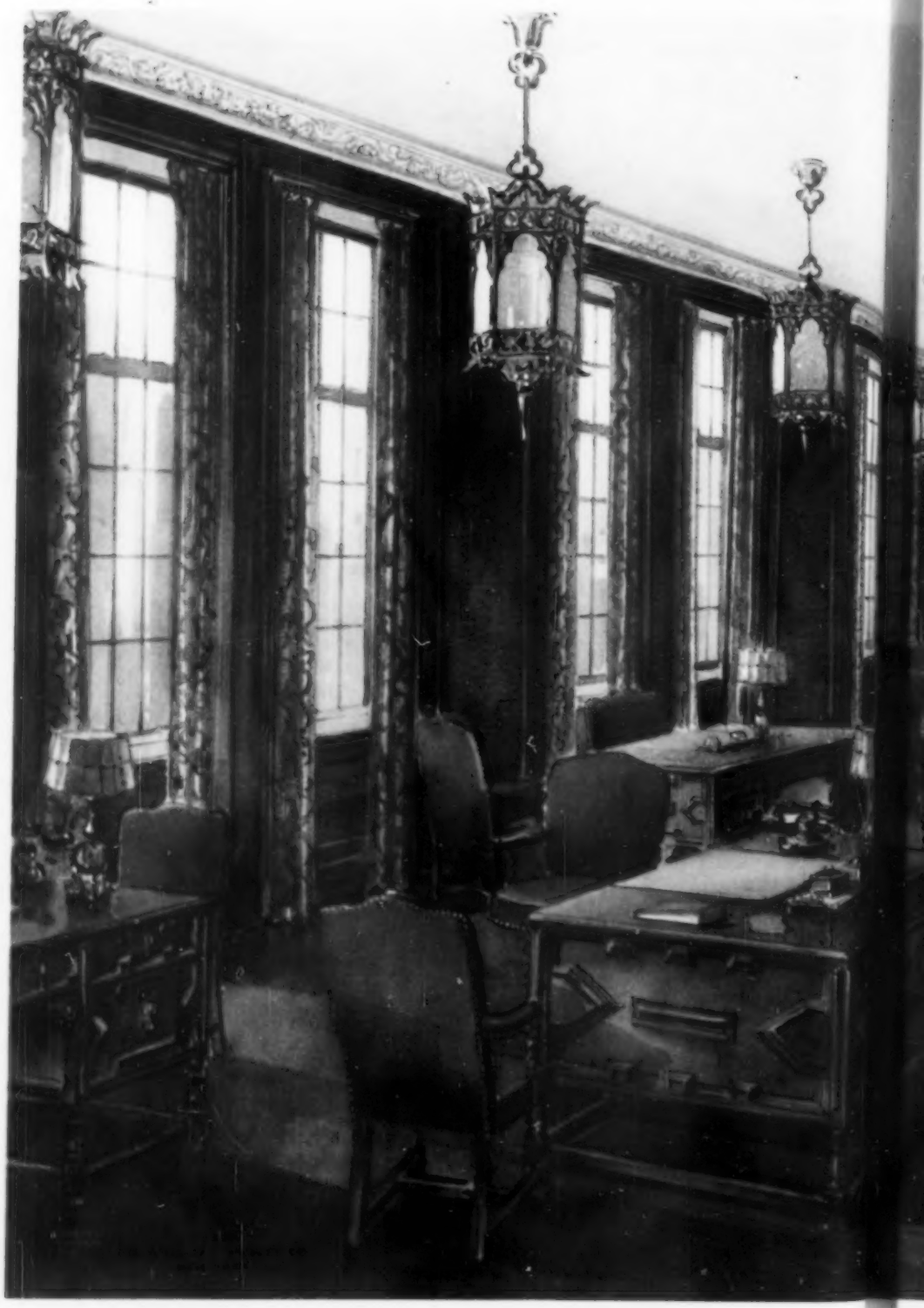


The Belgian Bank
NEW YORK

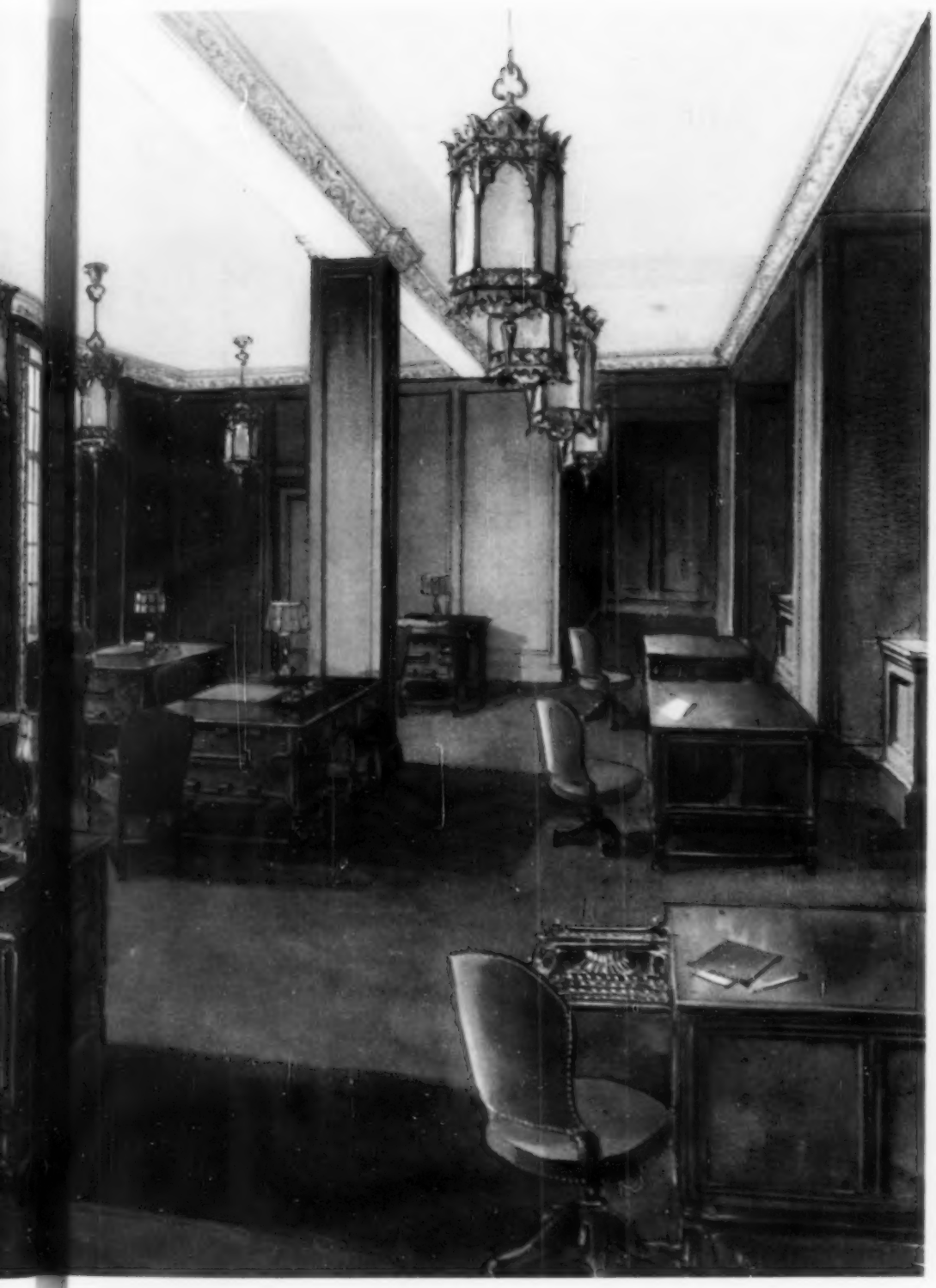
BANKS, investment houses, and other financial institutions have found our service of the greatest aid in correctly interpreting their standards, and this is not all.

We have been able to introduce, through the selection of appropriate furnishings, expert planning of space, and the most careful execution of every detail, a spirit of harmony which has done much to promote faster, clearer thinking.

For executives and professional men in all fields, who are interested in refurnishing their offices, we will gladly submit recommendations and sketches, entirely without obligation.



The WILLIAM W
11 East 36th Street • NEW O
Equipment Spe



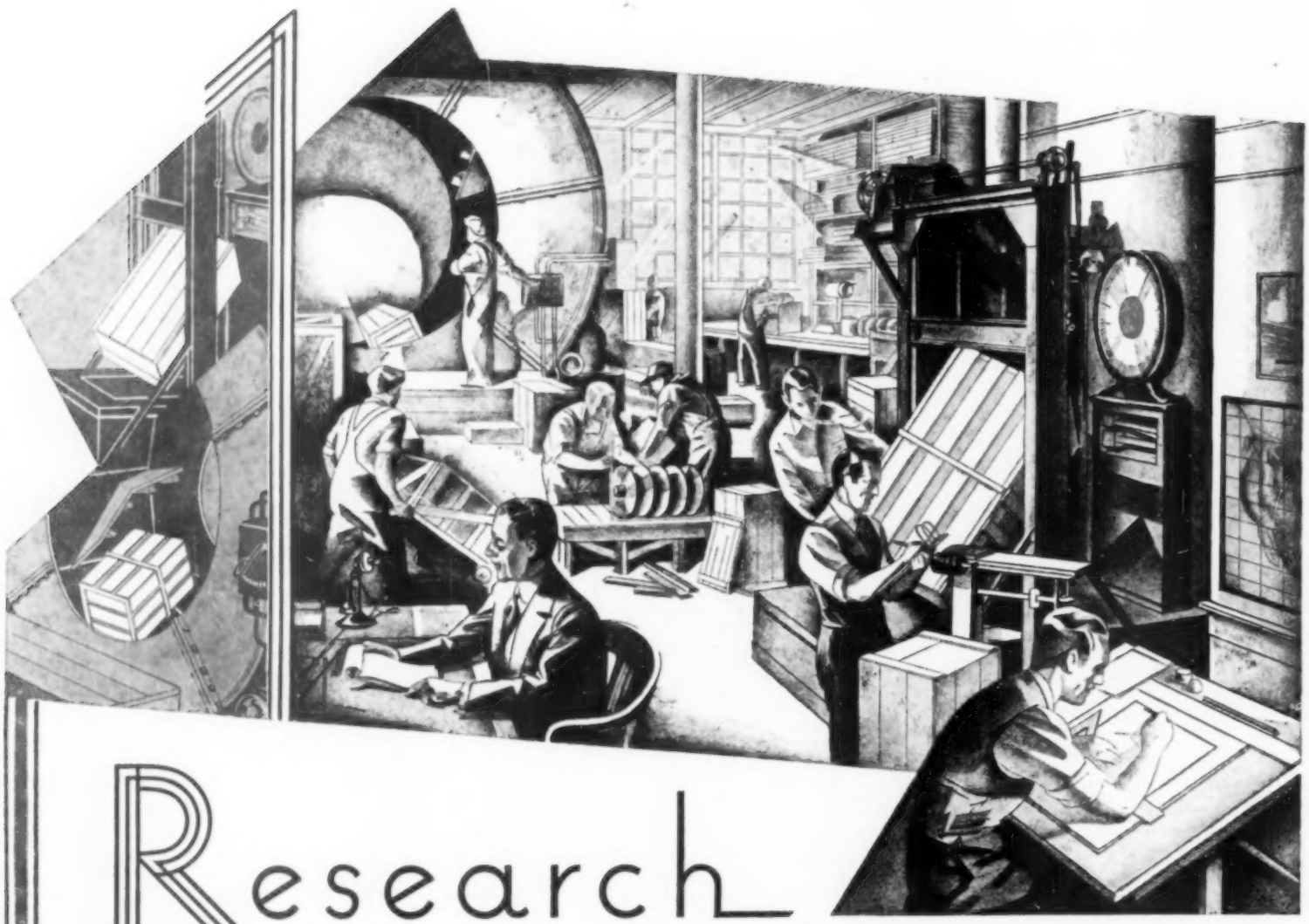
BOARD ROOM
Guaranty Trust Co.
New York

THE staff of The William F. Wholey Company are fitted by long experience in their field to give you the most intelligent advice on any phase of office layout, decoration, lighting and furnishing.

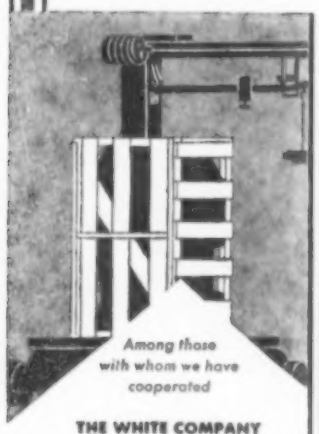
These men are trained specialists. They will bring to your problem not only the taste and discrimination of the real artist, but the practical wisdom of men who know their business by having lived with it for many years.

Let them share with you the benefit of their experience. It will amaze you what can be accomplished by *thoughtful* planning.

WHOLEY CO. *Inc.*
EW YORK • *CALedonia 9810*
ne Specialists



Research



Among those with whom we have cooperated

THE WHITE COMPANY
•
THE COLUMBIA MILLS, INC.
•
NATIONAL BISCUIT COMPANY
(Export)
•
GULF REFINING COMPANY
•
SIMMONS COMPANY
•
BURGESS BATTERY COMPANY
•
KOHLER OF KOHLER
•
THE B. F. GOODRICH COMPANY

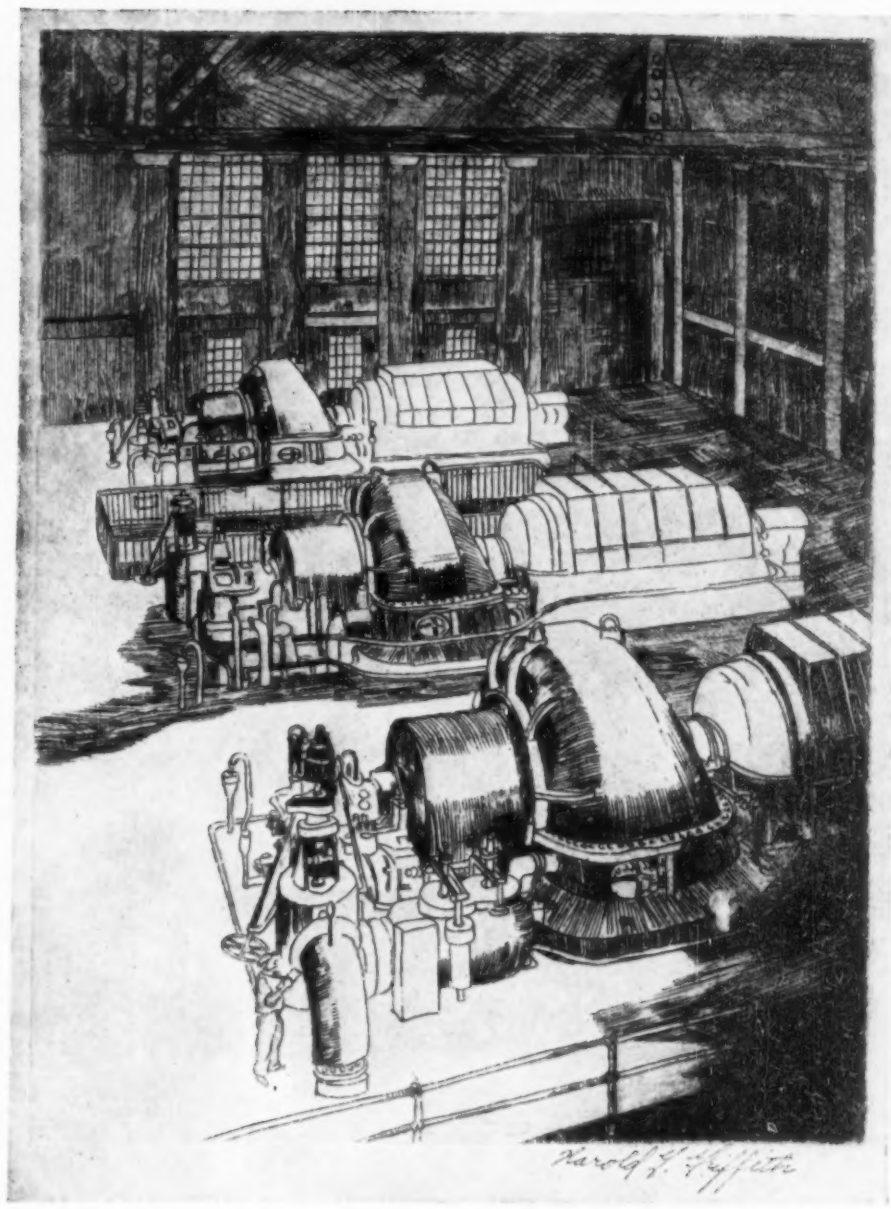
Profits in manufacturing today are often the result of better methods based on facts developed by research. This idea, no longer new in production and sales, is in its infancy so far as packing and shipping are concerned. . . . General Box Engineers, dealing with a wide variety of specific conditions, show definite savings in the majority of the problems they study. Their experience is yours to use in checking your own shipping costs for a possible profit opportunity. . . . Thirteen modern plants, with local delivery service in many important cities, insure an uninterrupted supply of money-saving boxes and crates. . . . Tell us the right name to put on the list, and we shall be glad to mail regularly a helpful bulletin devoted to better methods of packing and shipping.

GENERAL BOX COMPANY

44 WEST ILLINOIS STREET, CHICAGO, ILLINOIS

Bogalusa, La., Brooklyn, N. Y., Cincinnati, Ohio, Dayton, Ohio, Detroit, Mich., East St. Louis, Ill., Jersey City, N. J., Kansas City, Mo., Louisville, Ky., Milwaukee, Wis., New Orleans, La., New York, N. Y., Sheboygan, Wis., Winchendon, Mass.

IF YOU WANT CHEAPER POWER



POWER costs at Cleveland give local industries a distinct advantage over competitors in other cities. Three factors contribute to this result; proximity to coal fields; an unlimited supply of cold, clear water, and modern pulverized fuel plants, recognized as models the world over.

¶ Manufacturers are assured of constant and abundant power plus reliable service at low rates. Interconnecting generating stations have a present capacity of 600,000 horse power. An additional 200,000 horse power is being added this year by the building of a new plant with an ultimate capacity of 500,000 horse power.

¶ Power is one of the ten important factors in selecting a business location. For specific data regarding power at Cleveland, address this Bank.

GUARDIAN TRUST COMPANY

CLEVELAND, OHIO

RESOURCES MORE THAN $165,000,000

©G. T. Co.

WHITAKER & Co. INC.

SPORTING AND GENERAL TAILORS

666 FIFTH AVENUE
NEW YORK

AND AT 43 CONDUIT STREET LONDON W.

Underwriters and Distributors of
Government, Municipal, Railroad,
Public Utility and Industrial Securities

Investment and Brokerage Service

Members New York and other leading Stock Exchanges

OTIS & CO.
Established 1899

NEW YORK CLEVELAND CHICAGO

Offices in twenty-eight cities

SW&Co
A NATIONAL ORGANIZATION FOR CONSTRUCTIVE SERVICE

Scovell
Wellington
and Company

ACCOUNTANTS ENGINEERS

10 East 40th Street, New York City

BOSTON CLEVELAND CHICAGO PHILADELPHIA
SPRINGFIELD SYRACUSE KANSAS CITY SAN FRANCISCO

ART IN INDUSTRY

In connection with the opening of their new first floor and the painting therefor of murals by Mr. Boardman Robinson, the Kaufmann Department Stores, Inc. of Pittsburgh, Pa. announces a prize essay contest on the subject "Art in Industry", the prize to be $1,000 and the prize-winning essay to be published in a forthcoming issue of FORTUNE.

Rules of the Contest

(1) The Contest is open to anyone (excluding employes of Kaufmann Department Stores, Inc. or Time, Inc.) who submits an essay of less than 5,000 words which deals with some particular phase of or with the general subject of Art in Industry.

(2) The contest will open Saturday, May 31, 1930. All manuscripts must be in the hands of the Art in Industry Contests Editor, Kaufmann Department Stores, Inc., Pittsburgh, Pa., by midnight, Saturday, January 31, 1931. Manuscripts received after January 31 will not be considered.

(3) The prize-winning essay will be published in a forthcoming issue of FORTUNE.

(4) The essays will be judged by a committee to be announced later.

(5) All manuscripts must be typewritten and have the name and address of the contestant in the upper left hand corner of each sheet of paper.

(6) Only one essay may be submitted by each contestant.

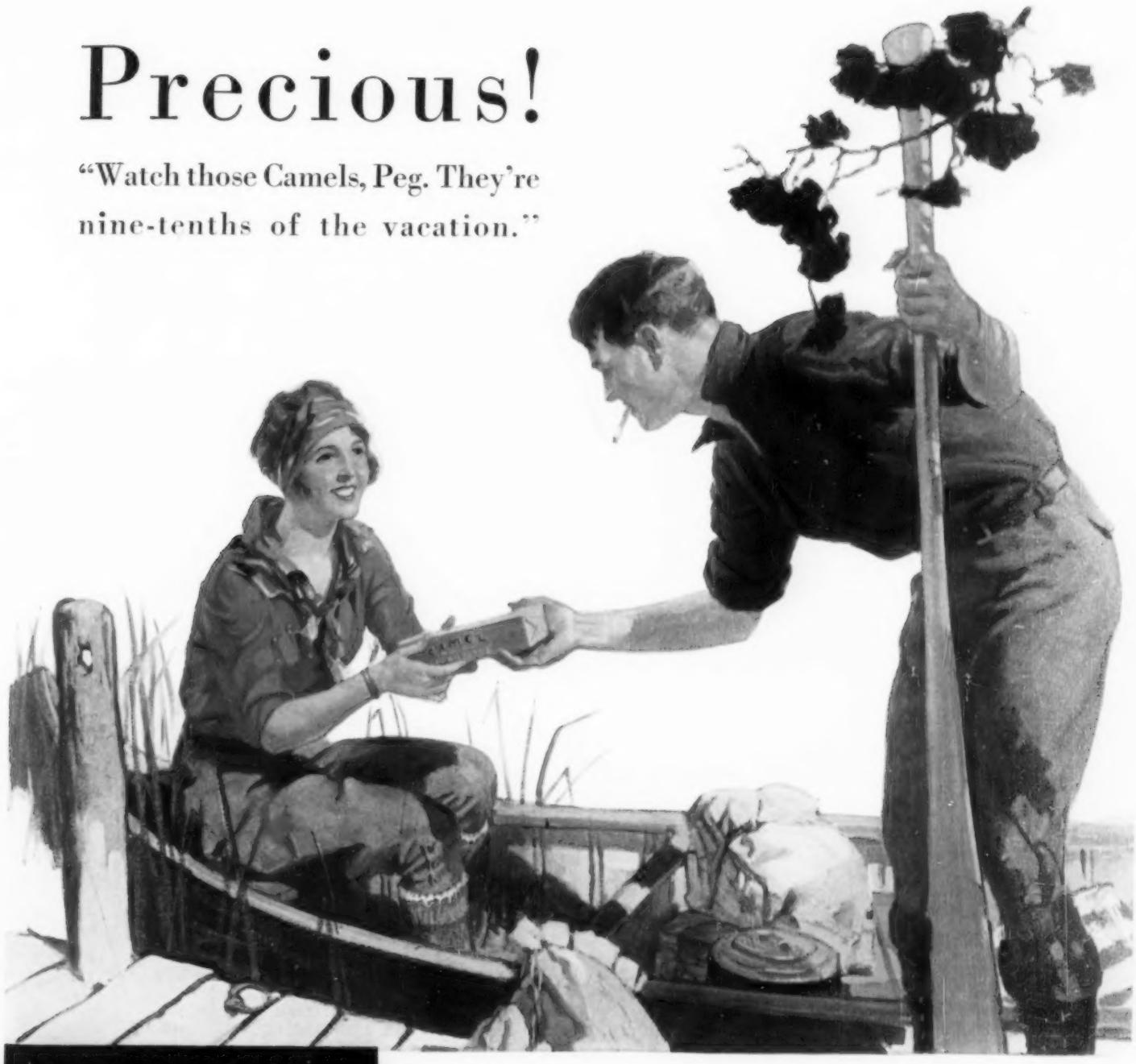
(7) Prize for the winning essay will be $1,000. In case of tie, each winner will receive the full amount of the prize. All information regarding the contest may be obtained from the Art in Industry Contests Editor, Kaufmann Department Stores, Inc., Pittsburgh, Pa.

(Signed)

Kaufmann Department Stores, Inc.
Fifth Avenue Pittsburgh

Precious!

"Watch those Camels, Peg. They're nine-tenths of the vacation."



Don't deny yourself the luxury of

Camels

© 1930, R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

CAUSE

In its service to transportation Goodyear has accompanied the pioneering and adventuring mind not only on land and sea, but in the air.

It has been content to follow, to develop and perfect, where that has seemed the more serviceable part; but no less quick to lead, when that has seemed essential.

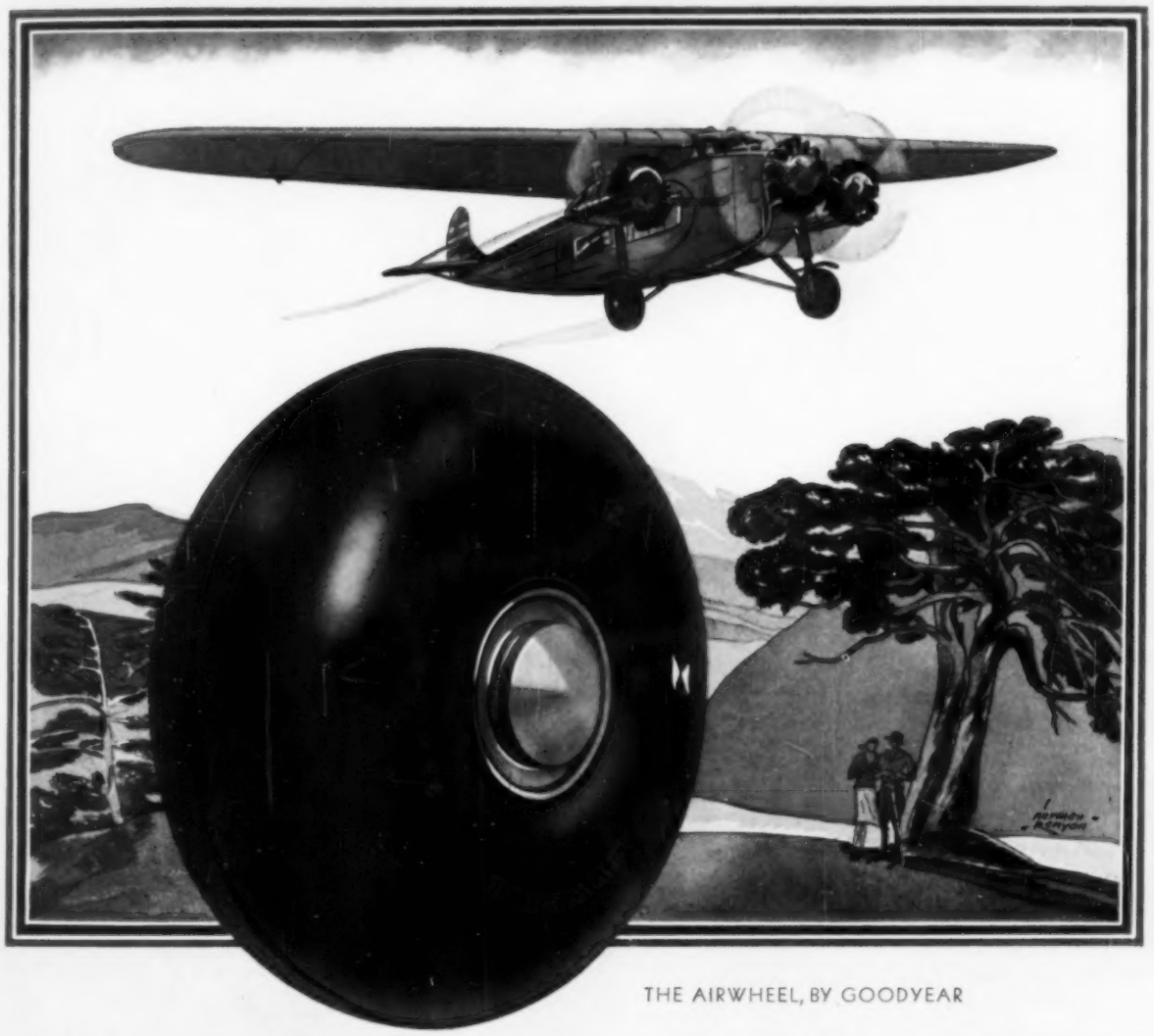
Thus, in its own special province of lighter-than-air transportation, it has made and is now making aerial history with Goodyear-built leviathans of the skies, while contributing signally also to the advancement of heavier-than-air craft.

As an example of the latter activity, Goodyear submits as its latest service to the airplane the new and revolutionary Goodyear Airwheel, destined to play a major part in the Age of Air Transport that now is here.

P. W. Litchfield
President

GOOD

RESULT



THE AIRWHEEL, BY GOODYEAR

These big soft rolling rubber pillows—Goodyear Airwheels—enable safe landings where airplanes never dared to land before. They take the place of the former wheel and tire, operating at pressures as low as 5 pounds—up to 15. They spread out—mushroom—when they touch ground. Repeated landings have been made with Airwheels on plowed ground, on swamp land, on soft sand and wet fields. They land with equal ease and safety on snow. Airwheels are now made for planes weighing 1,000 to 20,000 pounds. Every day shows an increasing number of airplanes fitted with this advanced Goodyear equipment.

YEAR

© 1930, The Goodyear T. & R. Co., Inc.

Luxury-loving ladies of Merrie England in Robin Hood's day journeyed forth in gayly draped and softly pillowed litters, borne by two stout horses and accompanied by men-at-arms

Packard engineering leadership — again impressively proved by the epochal development of the Diesel aircraft engine — has long rested on the distinguished and luxurious Packard Eight.

The same talent and resourcefulness which produced the Packard-Diesel — acknowledged the greatest advance in aircraft power in the history of aviation — developed the famous eight-in-line powerplant which has contributed so largely to Packard's supreme reputation in the fine car field.

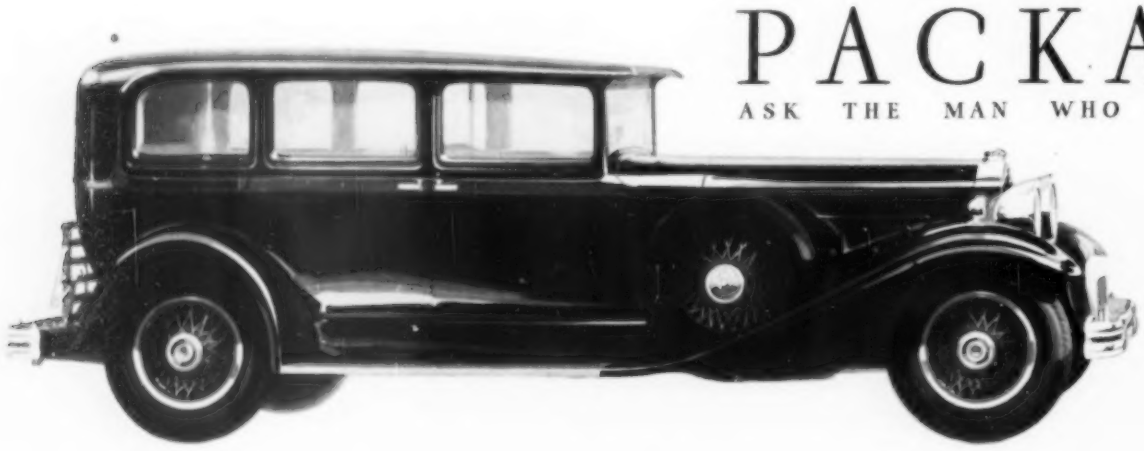
Only an organization thus skilled in the theory and practice of fine engine building could have conquered the baffling problems of Diesel aircraft engine design. And, conversely, the only organization which could design and build a successful aircraft Diesel — in competition with the engineering talent of the world — must be preeminently fitted to determine the ideal type of power for *luxurious* motor car transportation.

It is not accidental that the Packard Straight Eight is the largest selling car in the world in the field above $2,000.

Luxurious Transportation

PACKARD

ASK THE MAN WHO OWNS ONE



Volume 11

Fortune

Number 1

Contents for July 1930

Chrysler Tower 32
Skyscrapers 33
Chart 37
Executive Offices 38
A. & P. 40
Fairfield 41
The Company 45
Coffee 48
Diamond Match 50
Norman Bel Geddes 51
Locomotives—Baldwin . . . 58
Freight Cars—A. C. F. . . 62
Pullman 64
Cup Yachts 67
Marconi Rigs 71
Guggenheims 72
Natural Gas 77
Prize Essay 90

• • •

Off the Record 8
Statistics 14
Fortune Supplement . . . 107

for August

Beauty . . . . . Spalding . . . . . Skyscrapers
Turk-Sib . . . . . Coney Island
Harris, Forbes . . . . . India . . . . . Cash Registers

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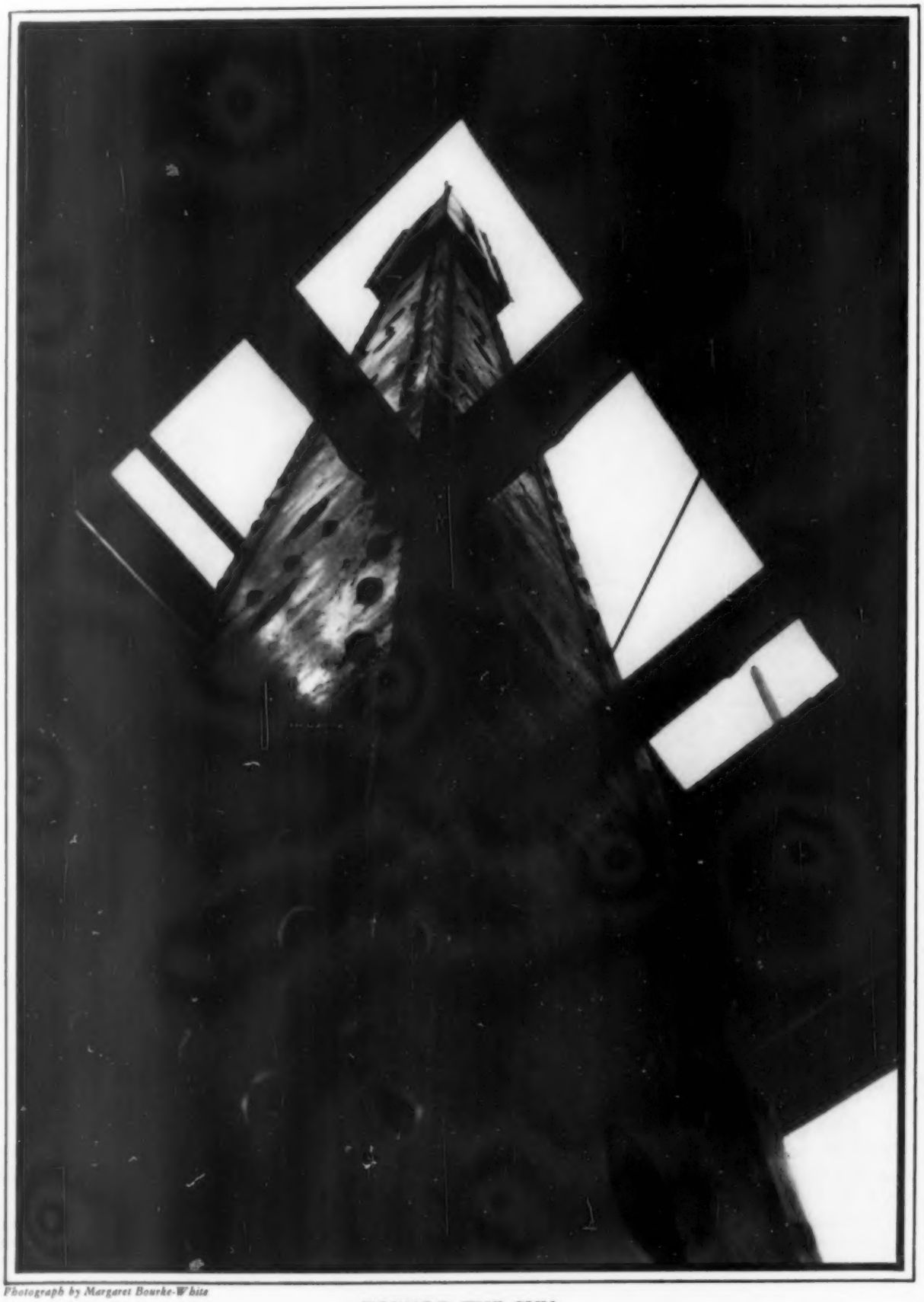


Photograph by Margaret Bourke-White

TOWARD THE SUN

MASSIVE FINIAL OF THE CHRYSLER TOWER BEFORE ITS SHEATHING IN NIROSTA STEEL

Skyscrapers

The towers no man can build; of what metals they are made and under what limitations of law and use; why they can be built only where it is most dangerous to build them and in limits of time which are most difficult to keep . . .

(Most Americans are proud of their skyscrapers. Most Americans are familiar with the silhouettes of famous towers. And if the crowds around the cellar holes are to be trusted, most Americans have also a lingering interest in the uses of dynamite and the facility of an Italian with a wheelbarrow. But the number of Americans who have any conception of the problems involved in the construction of these walls is not so great. It is true of industry, in general, that only a few men are really familiar with what everybody knows. But it is most strikingly true of the building industry.

FORTUNE here begins a series of six articles on the skyscraper. These articles will consider the history of such structures from wrecking to roofing. They will concern themselves with the promotion and financing of great buildings; the activities of realtor and speculator and bond house and bank; the preparation of engineers' plans and the problem of steel; the preparation of architects' plans and the problems of zoning laws and owners' profits; the actual construction; the coördination of activities in the builders' office; the mechanical installations: elevators, ventilators, heating systems, signals. And they will attempt, ultimately, to consider the merits of the skyscraper as a tool of industry. The first article of the series presents the geography of the problem.)

ONE bright morning toward the end of September the window glass comes out of a row of brown front buildings on a side street, leaving a cracked shade to rattle in the air and a naked view of bedroom wall paper. A day later the walls are spilling down through dusty chutes into the truck bins. Then one day the buildings themselves have gone, and the cellar holes gape in the unaccustomed sun like lake bottoms in a dry time. A steam shovel slowly crawls across the curb and down a steep ramp to the pit. Derricks raise their solemn arms over the vanished houses. The breathless pumps begin. The drills sing like gigantic locusts in the granite ledge, break off with the shock of the detonations, begin again. Pneumatic hammers batter at the standing piles. And suddenly one warm day at the end of April a scrub of steel butts rises above the street. By May it is a dozen stories in the air, rigid and insubstantial and accurate. The derricks hoist themselves up from floor to floor. The rivet hammers rattle at the fragile steel. The loose wood planking of the floors is replaced by arches of cement. Pipes and cables climb the column sides. Stairs begin far down in the crazy frame. Elevator guides go in. By July the derricks are leaning over thirty stories of clear space, with ten left to go. And already the bricklayers are tacking walls to the mid-section of the tower, with nothing below them but the spindles of painted steel. By the end of August the derricks are swinging water tanks and fans to the level of the roof, and the bricklayers, moving up and down the shell a story a day, have sheathed it all. Windows go in. Glass is set. Ornamental shop fronts appear from beneath a mask of boarding. The unfinished lobby offers a glimpse of hitherto unheard-of marbles and elevator doors as elaborate as the bronze doors of the Baptistery in Florence. Photographs of the new roof line with the silver shape of the *Los Angeles* beyond appear in the illustrated magazines. And the city newspapers refer again to Aladdin and the miraculous lamp.

All this is familiar enough. Few human beings in the great cities of America (and few in the small) have not seen or heard or walked around or bumped into the building of a new skyscraper. Every Sunday paper with space for an impressionistic drawing in shadows and shafts of light has described it. And yet the people who really understand how it is done are rare as Presidents in a college class. And the men who can do it are worth their weight in bonds. Or their weight in anything conceivable, for actually they do not exist. No man alive can build a skyscraper. No man alive can, alone and without the most complicated and accurate organization, oversee its construction. For its construction involves categories of specialized human knowledge and human skill so varied and so numerous that they exceed the power of any single will to control them. There were employed in the construction of the Chrysler Building:

400 masons and common laborers
256 plumbers
130 electrical workers
100 carpenters
150 steel workers
100 heating and ventilating workers
6 riggers
8 glaziers
4 marble-cutters
14 waterproof workers
10 asbestos workers and insulators
40 hoisting workers
60 tile-layers
35 window workers
25 iron workers
15 sprinkling system installers
35 workers on sidewalk bridges
2 installers of safety sidewalk elevator device
6 steel inspectors and expediters
20 workers on door bucks
4 mail chute installers
4 roofers
3 stone-cutters

In addition to these workers, there had been employed in the construction and planning of the building a varying number of:

architects
mechanical engineers
structural engineers
zoning experts
master plumbers
heating experts
ventilating engineers
electrical engineers
elevator manufacturers
experts on refrigeration
bond houses
insurance companies
real estate brokers
building inspectors
foundation builders
blacksmiths

N. Y. Times Commercial Studio
RISING GIRDERS MUST LEAVE ROADWAY FOR THE TRUCKS

Courtesy Mack Truck Co.

THE RUBBISH OF OLD BUILDINGS AND THE ROCK FROM THE EXCAVATIONS GO OUT IN TRUCKS . . .

. . . AND TRUCKS BRING IN THE MATERIALS OF THE NEW

boiler-makers
bricklayers
cement workers
concrete workers
composition workers
elevator constructors
engineers
glass workers
house-shorers
sheath-pilers
machinists
marble-carvers
job-runners
derrickmen
painters and decorators
plasterers
sheet metal workers
marble-polishers
bed-rubbers
sawyers
metallic-lathers
truck-drivers
riveters
watchmen
timekeepers
accountants
superintendents
foremen
wrecking crews
mosaic and terrazzo workers
pipe-fitters
gas-fitters
steam-fitters

And they were employed under limitations of time and space which exaggerated the difficulties and complications of their work.

Superficially put, the problem of erecting a skyscraper is the problem of building in half the necessary time, under the most dangerous, difficult, and inconvenient circumstances, the largest and most elaborate structure mankind has yet devised. At every step of the process, from the purchase of the land to the renting of the floor space, disaster is imminent, and during the actual construction only the combination of the skill of a field marshal, the wits of a train dispatcher, the tact of a prince consort, and the inherited erudition of a dozen sciences keeps things going at all. To begin with, there is the chance of financial failure. The life expectancy of an office building in a city like New York is not long, and even should the building be permitted to stand, business and hence real estate values may flow away from it. Again, a skyscraper is always built in a highly congested district because only in such a district can such an investment be made to pay returns (or, to adopt the phraseology of the skyscraper economists, because the value of the land in such districts compels such an investment). Consequently the foundations of the new building will go down beside the foundations of existing buildings, which will have to be shored in process, and against the margins of streets which must not only be supported but so supported that the channels of communication—water supply, gas supply, electricity, sewage disposal, and signals—shall not even momentarily be interrupted. But the great obstacle to be surmounted in the construction itself is the lack of space for storage of materials. The sheds full of steel, stone, brick, tile, cement, plaster, wire, wood, etc. which surround the building of even a small country factory simply cannot exist. The ground they would cover is ground worth $200—$300 a square foot, renting at commensurate figures. Consequently the building must be built from trucks. But since the streets surrounding the site are the busiest streets of a great city, the trucks cannot stand. They must unload and move. Which is to say that the materials they unload must, at least during the structural stages, be built at once into the building. If there were only the steel to consider, this would be difficult enough. But a glance at the Construction Progress Chart of any big building will show at once the multiplication of simultaneous operations that begin with the completion of the excavations. At the same time that columns and girders are being hauled in for the frame of the building, trucks loaded with tile, with brick, with boilers, with ventilating fans, with sheet metal, with electric cables, with wood, wire, paint, metal lathing, motors, water closets, nickel faucets, and terra cotta are lining the streets. The cement trucks that mix as they carry (a solution of one of the congestion problems) are revolving their bottle-shaped steel containers in the traffic. And a rush order of brass pipe which must be laid along the floor arches before the cement is poured is backing to the curb. Or later on, a low-swung trailer will carry to the job some huge piece of ventilating or heating machinery which must be lowered into the basements before the sidewalk beams upon the truck behind can be set. And the steel construction gangs,

through now with their riveting aloft, are waiting, idle, for the sidewalk beams to come. But the difficulty does not end there. Not only must the delivery of materials be adjusted at one end to the capacity of the builders to receive them; it must also be adjusted at the other to the accidents and delays of long-distance transportation by water and by rail.

For the material of a great building, if it were returned to its places of origin, would be scattered like volcanic dust over the face of the earth. A modern skyscraper may contain, in addition to the West Virginia oak and San Domingan mahogany and Canadian spruce of ordinary usage, satinwood from San Domingo, Makassar ebony from the Dutch East Indies, bubingo wood from the West Coast of Africa, oriental walnut from Australia, Peroba wood from South America, English gray harewood, padouk from the British East Indies, avodire from the French Congo, East Indian rosewood, Austrian salewood, Brazilian burl, and South African madrone.

Its brass pipes, sheet copper, and copper rods and tubes may come from Ansonia, Waterbury, and Torrington, Connecticut.

Its aluminum will be of Pennsylvania or Tennessee origin.

Its asbestos may come from Russia or South Africa, but is more probably produced in Asbestos, Quebec.

Its insulating cork will be Portuguese or Spanish.

Its limestone will come from Indiana, its travertine from Italy, its cast stone from New York, its marble from Vermont or Sweden, its granite from Vermont or New Hampshire or North Carolina.

The chances are its cement is Pennsylvanian, its gravel and slate the same (with a fair possibility of Vermont in the slate), its common brick from Michigan or Massachusetts, and its zinc from Oklahoma.

Metal laths are built in Minnesota and West Virginia, cast stones in Crestwood, New York, face brick in Ohio.

Terra cotta is made in Perth Amboy and South Amboy, New Jersey, from New Jersey and Ohio clays.

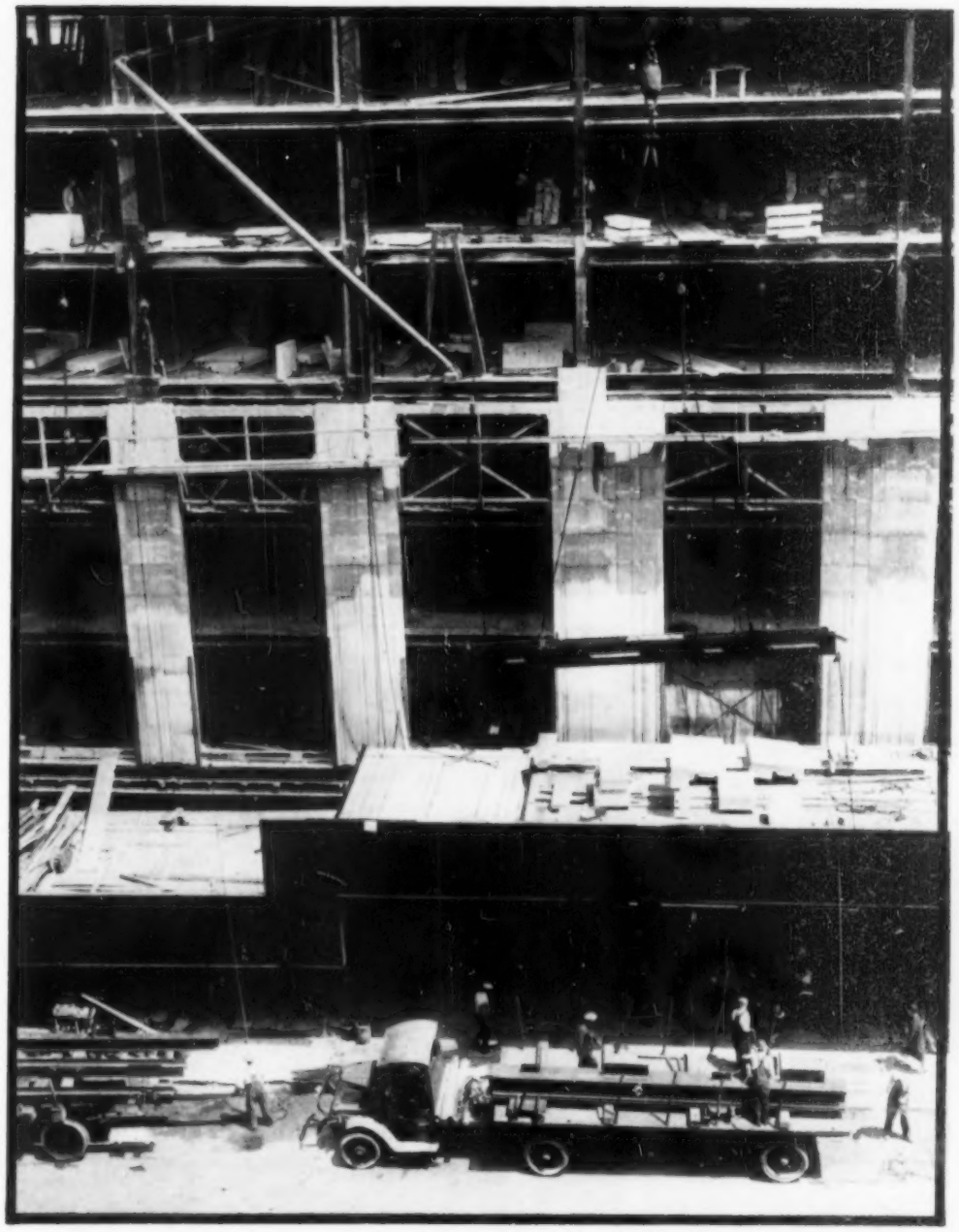
Tiles are made from clay, feldspar, and flint in New Jersey, Ohio, and California, the clay coming from Florida.

Plumbing and plumbing fixtures will involve brass from Alabama; bronze from Bridgeport; pottery from Georgia, England, Canada, China, and Paris; marble from Mexico, Belgium, and Italy; and glass legs from Czechoslovakia.

Steel may be Pennsylvanian or English. Bolts and nuts are a national product with a Connecticut habit.

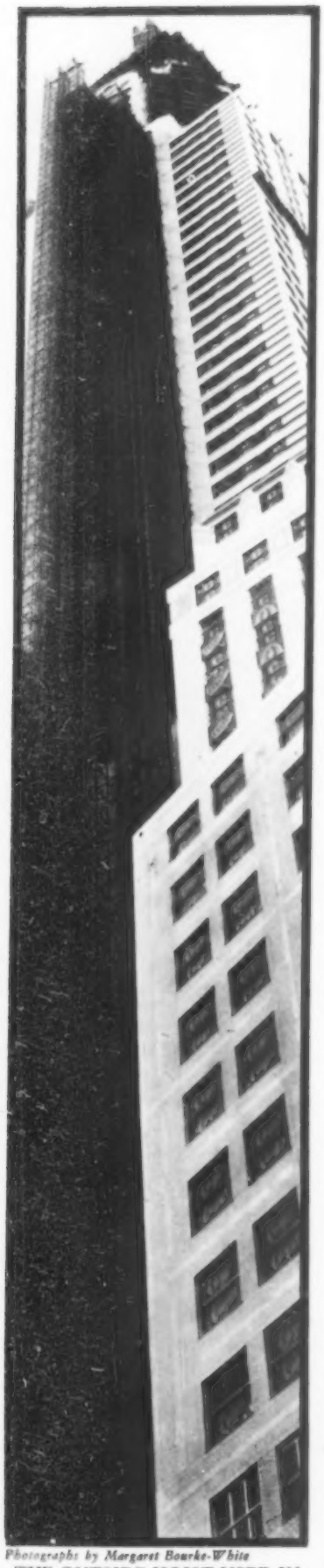
Most metal flagpoles come from Newark and Trenton. Ventilator fans are a product of Detroit, Buffalo, and the Commonwealth of Massachusetts.

Glass has a Pennsylvania-Missouri-Indiana-West Virginia-Ohio habitat, and wire glass roughly coincides. But considerable quantities of plate glass are French or Belgian. And so the list runs on.



GIRDERS ARE FIXED IN PLACE AS TRUCKS DELIVER THEM

The assembly of this mass of material is not a mere question of purchase. The manufacturing industries are themselves directly involved, and the builder must coöperate with the shops. For example, structural steel is made according to the structural engineer's specifications. Blue prints and shop drawings of the members required are sent to the bridge shops. (Traditionally bridge shops rather than rolling mills make up the structural members. The rolling mill rolls the units necessary to the fabrication of the member and delivers these to the bridge shop. The bridge shop may be next door to the rolling mill or hundreds of miles away.) From the bridge shop lists of the plain shapes and sizes of steel desired are forwarded to the rolling mill. Some of these shapes and sizes are necessarily unusual and require an alteration of the rolls, during which process no rolling can be done on the bed in question. Consequently the mill will delay rolling the unusual shapes until it has enough orders from all sources to justify the resetting of the rolls. The delay may amount to six weeks. To meet this situation, the builder will get his shop drawings to the bridge shop as early as possible, and he may even go so far as to keep himself informed as to the pending orders for unusual shapes and sizes of steel in the various mills. But the association does not end there. The builder's expediters must follow the orders through, and the builder must provide and check the elaborate "setting plan" in accordance with which each piece is marked for its place in the building and, if the job is big enough to require several derricks, with the number of the derrick which is to handle it. In addition to his relation with the steel manufacturer, the builder must work in



Photographs by Margaret Bourke-White

THE OUTSIDE HOIST USED IN CONSTRUCTION OF THE CHRYSLER BUILDING . . .

more or less intimacy with cement makers, brick manufacturers, terra cotta works, manufacturers of roofing and sheet metals, glass factories, elevator constructors, makers of fans, ventilating systems, heating systems, sprinkling systems, pneumatic systems, general electrical companies, paint shops, chemical dealers, and a score of manufacturers of the odds and ends of mechanical installation and interior finish. He must know enough to know where to go for what he wants, and he must know what he can expect. His profit depends upon such knowledge.

The difficulties surrounding construction apply also to the preparatory work. Even in the design and arrangement of the building the architect in New York (and other American cities having zoning laws) is not free. His building must comply with the provisions of local ordinances which require, to take New York as an example, that the building, if it rises above a certain height, shall recede from the street line until it occupies only one-quarter of the area of the lot. It must also comply with the requirements of the Building Code as to strength and construction. And it must be designed with an eye to the present and the possible future neighbors it will face. Not only must it harmonize with them to such an extent that its own design will not be neutralized, but it must be made as safe as possible against the competing and higher structures which the ambitions of rival banks, automobile manufacturers, and clothing dealers may throw into the sky above it. Last, but very far from least, the design of the building must be beautiful. The tall building is not only an agency of business constructed to house tenants and make their days as comfortable and efficient as possible; it is also an advertisement for its owner. And a lasting advertisement. It must attract attention and favorable attention not only now but ten years from now when the taste in woodwork and glass and metal and even the taste in line may be decidedly different from what now it is. The task is far from easy as the rate of mortality among New York buildings very clearly indicates.

There are, finally, as parts of the great problem of the erection of the completed skyscraper, the sub-contracts. Chief of these in importance to the mere existence of the skyscraper is the elevator contract. Without the modern electric elevator the tall building would be as impossible as it would be if structural steel had never been employed. The elevator manufacturer is represented from the very beginning of construction. So, too, are the ventilating engineer, the electrical engineer, the heating engineer, and the plumber. Their work is coördinated by the builder, but they are masters in their own fields and their own fields are difficult. So difficult that no one outside the profession involved can hope to do more than learn how best to use the knowledge of those within it.

The story of skyscraper construction is the story of all these parts and their relation to each other. It is the story of the promotion and financing of great buildings, the preparation of the plans and specifications, the construction of the building itself, and of the mechanical services the building contains. But it is also the story of the men engaged in that work and particularly of the builder. For the complication of the builder's work, though it has replaced the individual man with the more accurate and consistent and comprehensive corporation, has not altogether swallowed the men themselves. George A. Fuller, Paul Starrett, Theodore Starrett, William A. Starrett, Louis J. Horowitz, Fred T. Ley, John Griffiths, Dwight P. Robinson, James and Alexander Stewart, Marc and Otto and Robert Eidlitz were and are more than names on letterheads of corporations. If these towers stand, either in steel or in the words of men now living who have seen them, the nations of another time will speculate as to their origin and their creators and their cause. They will imagine young and arrogant and reckless men who delighted in extreme height and great richness of decoration and were proud of their victories over the strength of the wind. They will imagine our age to have been what these builders would represent it. And it may well befall those overcautious gentlemen who now attack the skyscraper for its exaggeration of height and size to be honored for living in a time that built the thing they hate. It is permissible to hope that in that day the names of the builders themselves will not have been forgotten.

. . . THE HOIST FROM THE INSIDE. MEN AND CEMENT RIDE UP THESE RAILS